Appendix H

Traffic Engineering Assessment

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Traffix Group

Traffic Engineering Assessment

Normanville Energy Park

Prepared for
Normanville Energy Park Pty Ltd as trustee for Normanville Energy Park Unit Trust

November 2024

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1. Introduction

Traffix Group has been engaged by Normanville Energy Park Pty Ltd as trustee for Normanville Energy Park Unit Trust to undertake a Traffic Engineering Assessment for the Proposed Energy Farm at Normanville Energy Park.

Current plans show 17 wind turbine generators, with a hub height of up to 180m, maximum blade length of up to 90m and maximum tip height of up to 280m.

This report provides a detailed traffic engineering assessment of the anticipated construction traffic and likely transport impacts. In particular, this traffic impact assessment report has had consideration to the following:

- An existing conditions survey of public roads in the vicinity of the site that may be used for site access and internal vehicle circulation.
- The anticipated traffic volumes generated during the wind farm construction.
- The impact of the wind farm construction traffic volumes on the surrounding arterial and local road network.
- The identification of required road network improvement measures to accommodate the anticipated wind farm construction traffic.
- An assessment of appropriate construction and transport vehicle routes to the site, including identification of intersection upgrades from the Port of Portland to the site.
- The identification of appropriate vehicle access points to the site from the surrounding road network.

2. Existing Conditions

2.1. Subject Site

The subject site comprises of a number of parcels of land, located approximately 12km west of the Kerang Township

The location of the subject site in the context of the surrounding area is presented at Figure 1.

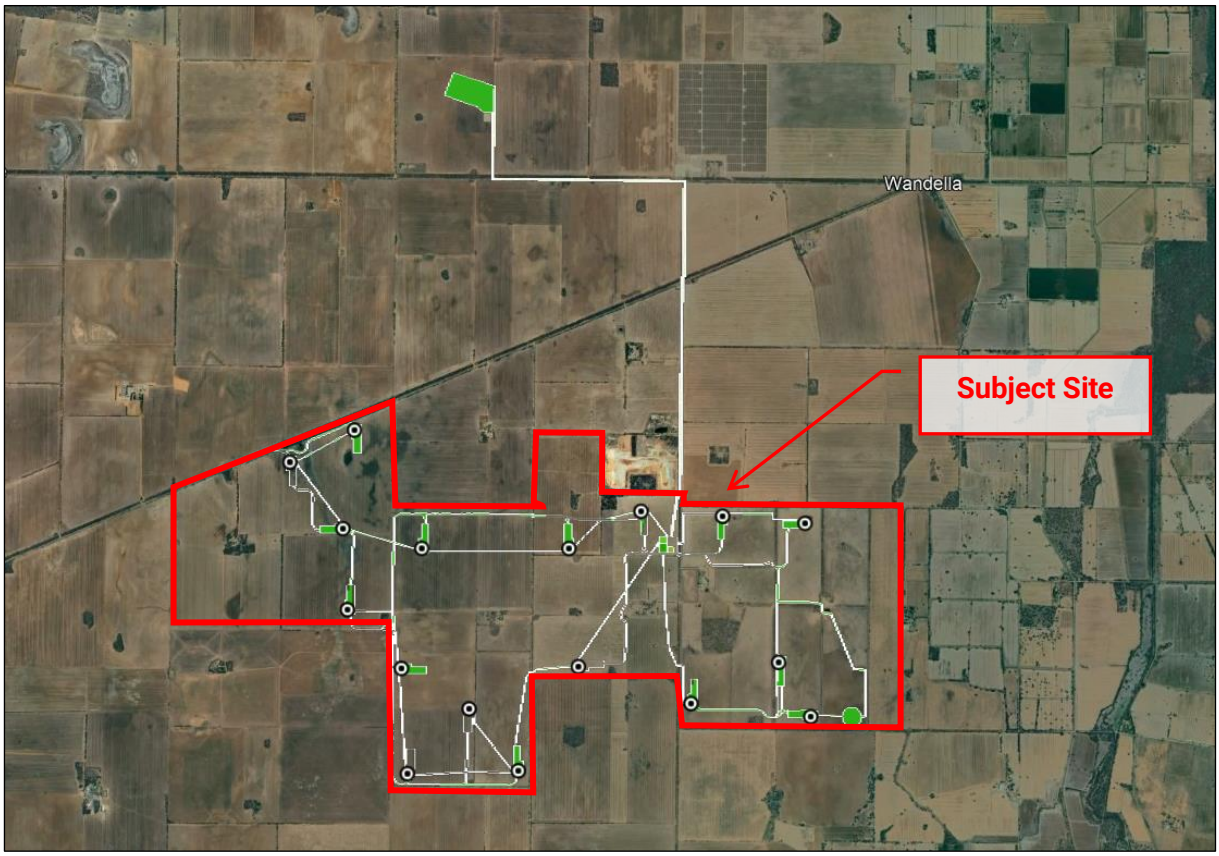


Figure 1: Locality Plan

2.2. Road Network

The characteristics of the key roads internal to, bounding, and in the vicinity of the subject site are presented in Table 1, with photographs of the road network shown in Appendix A.

Roads have been classified in accordance with the Gannawarra Shire Council Road Register, with the characteristics of these road classifications summarised within Table 2.

Table 1: Road Network Summary

Road	Approx. Carriageway Width (m)	Approx. Road Reserve Width (m)	Surface and Condition	Road Classification
Arterial Road Network				
Kerang-Quambatook Road	6.0	60	Sealed Good	Arterial Road (VicRoads)
Local Road Network				
Normanville Road	6.3	60	Sealed Good	Rural Collector Road
Robinson Road	6.2	20	Unsealed Poor	Rural Access Road (Major)
Denyer Road	6.2	20	Sealed Good	Rural Collector Road
Denyer Road (past the site)	4.5	20	Unsealed Poor	Rural Access Road (Minor)

Table 2: Road Hierarchy Summary

Hierarchy	Function [1]	Accessibility	Surface
Arterial Road	N/A [2]		
Rural Collector Road	Primarily connects into residential areas, minor industrial centres, primary commercial access or conveys traffic to link or arterial roads	All Weather Access	Gravel or Sealed
Rural Access Road (Major)	Primarily provides access to residences	Generally All Weather Access	Gravel or Sealed
Rural Access Road (minor)	Primarily provides access to property	All Weather or Dry Weather Access Only	Gravel or Earth

[1] As defined within the Gannawarra Shire Council Road Hierarchy.

[2] Arterial Roads are not specifically defined with the Gannawarra Shire Council Road Hierarchy.

2.3. Existing Road Surfaces and Overhead Obstructions

Traffix Group undertook a visual inspection of each of the roads set out in Table 1 in February 2023 to identify the current standard of the roads, surface conditions and obstructions.

The road surface of sealed roads were observed to be generally in good condition with the unsealed roads observed to be generally in poor condition. Key observations of the road network are summarised as follows:

- Fences, signs and trees that are located within the road reserve for most roads are generally set back sufficiently to not impact any vehicles travelling along such roads. The exception being Kerang-Quambatook Road where trees were identified to encroach over the carriageway. Prior to any construction vehicles accessing the area, a site inspection will need to be undertaken, in conjunction with the relevant authority, to determine the precise location of tree canopies and the current height of clearance provision as well as any necessary increases in these clearances.
- Overhead wires were observed along Kerang-Quambatook Road within the vicinity of and past the site, and on Denyer Road near its intersection with Kerang-Quambatook Road. Prior to any construction vehicles accessing the area, a site inspection will need to be undertaken, in conjunction with the relevant authority, to determine the precise location of the power lines and the current height clearance provision as well as any necessary increases in these clearances.
- The road surface and road conditions of Kerang-Quambatook Road as well as Denyer Road (between Kerang-Quambatook Road and the Gannawarra Landfill) are good/sealed. Approximately 1.2km south of the Gannawarra Landfill, Denyer Road becomes poor/unsealed. Prior to any construction vehicles accessing the area, a site inspection will need to be undertaken, in conjunction with relevant authority, to determine the suitability of the road conditions, particularly south of the Gannawarra Landfill along Denyer Road.

2.4. Traffic Volumes

Traffix Group commissioned weeklong pneumatic tube counts on key roads in the vicinity of the site which are presented at Table 3. The tube counts were conducted between Friday 24th February 2023 and Friday 3rd March 2023.

Table 3: External Road Network Daily Traffic Volumes

Road Name	Road Classification	Daily Average Weekday Traffic Volumes (Two Way)
Kerang-Quambatook Road	Arterial	299 vehicles/day
Denyer Road	Rural Collector Road	36 vehicles/day
Robinson Road	Rural Access Road (Major)	13 vehicles/day
Normanville Road	Rural Collector Road	56 vehicles/day

3. Proposed Wind Farm Arrangements

3.1. Anticipated Construction Timeline

The total construction timeframe is expected to be approximately 12 months for the proposed wind farm. This includes a turbine component delivery timeframe across approximately three months respectively for the wind farm.

On average, approximately 6 turbine deliveries are anticipated each month with peak periods expected to generate in the order of 2 deliveries per week.

It will be necessary to undertake various road improvement works to the local road network to accommodate the size and weight of vehicles associated with the construction of the wind farm. Further details of these improvement works are presented in Section 7 of this report.

3.2. Location of On-Site Facilities

On-site facilities include:

- Operations and Maintenance (O&M) facility
- Temporary batching plants, with material sourced locally (external to the site)
- Temporary lay-down areas
- Temporary construction compound
- Substation / collector station

3.3. On-site Loading and Storage Areas

Wind turbine generator components will be unloaded at each wind turbine generator site during construction. Various construction compounds for staging of component deliveries will also be provided on site.

3.4. Car Parking

Car parking for construction workers will be provided at the site compounds, located at the substation area of the site.

3.5. Restriction on Construction Operations

In deriving appropriate hours of operation, the needs of local residents, Normanville Energy Park Pty Ltd and other road users will need to be balanced. It will also need to be recognised that there may be some instances where certain deliveries to the wind farm site (such as over-dimensional deliveries) will need to occur outside of the regular working hours of operation for the site.

A Traffic Management Plan will need to be agreed between Gannawarra Shire Council, Department of Transport and Planning (DTP), and Normanville Energy Park Pty Ltd whereby the relevant authorities (Gannawarra Shire Council and DTP) are given sufficient warning of an

out of hours delivery to allow them to advise local residents and other road users of the forthcoming event.

The size of vehicles that are anticipated to deliver wind turbine generator components to the site are significant and will have an impact on the times that it will be possible to transport over-dimensional loads on the road network. Deliveries of the largest over-dimensional loads (an approximate maximum blade length of up to 90m) are expected to occur outside of the road network and school peak hours which typically occur on a weekday from 8:00am to 9:30am, 2:30pm to 4:00pm and 5:00pm to 6:00pm. The actual peak road network times that will need to be avoided will be agreed with DTP.

Furthermore, the hours of over-dimensional deliveries will need to occur at times when the impact of slowing or stopping existing traffic movements on the road network can be achieved safely and with the minimum of disruption to the operation of the road network. This will likely include a curfew on heavy vehicle movements during school bus operations (i.e. on roads carrying school buses during school pick up and drop off times). Times will be controlled through the application for the relevant over-dimensional permits.

4. Traffic Generation

4.1. Over-Dimensional Traffic

A number of over-dimensional vehicles will be required to access the subject site in order to transport the individual components of each wind turbine generator. An estimation of the number of over-dimensional trips[1] is provided in Table 4[2].

Table 4: Over-dimensional Trips Summary

Component	Vehicle Trips Per Turbine	Overall No. of Vehicle Trips (Project Duration) [1]
Tower	8	136
Nacelle	1	17
Blades	3	51
Drivetrain	1	17
Hub	1	17
Turbine Transformer	1	17
Tower Base Ring	1	17
Total	16 trips per turbine	272 entry and exit trips (total of 544 road network movements)

[1] Based upon 17 turbines within the site.

Table 4 indicates that the proposed wind farm could be expected to generate up to 272 over-dimensional vehicle trips during construction. It is noted that a trip reflects single entry and exit movement from the site. That is, a total of 544 over-dimensional vehicle movements on the road network are anticipated as part of this project. In many instances, depending on the component being delivered and vehicle utilised, it is the entry movement to the site which is most critical, as the exit movement is undertaken by an unloaded vehicle of reduced weight and/or reduced length (i.e. as the component no longer needs to be stored on the vehicle).

Examples of the over-dimensional vehicle types that may be used to transport the tower sections and blades are presented in Figure 2 and Figure 3.

[1] Each trip comprises both an entry and exit movement, that is one trip equates to two road network movements.
[2] Information provided by Normanville Energy Park Pty Ltd.

Figure 2: Example Tower Transport Vehicle

Figure 3: Example Blade Transport Vehicle

4.2. Koorangie Terminal Station Over-Dimensional Traffic

In addition to the over-dimensional traffic that will be generated by the transportation of the individual components of the wind turbine generators, the project will also undertake minor upgrade works to the Koorangie Terminal Station (KTS), located on Kerang-Lalbert Road to the north of the subject site within the Koorangie Energy Storage System (KESS) Project Area. These minor works will require one transformer to be transported to and installed at the terminal station, that is, one trip (being two movements to/from the site) by an over-dimensional vehicle.

We have been advised that the indicative dimensions of the transformer are 5m high, 4m wide and 8m long.

Vehicle access for the KESS is currently provided directly via Kerang-Lalbert Road. The specific design of the connection to accommodate the over-dimensional vehicle associated with the transportation of this transformer will be subject to the detailed design stage of this project and can be mandated by way of a permit condition.

It is noted that the higher order road network in the vicinity of KESS, including Lalbert-Kerang Road, is approved for Oversize-Overmass vehicles, as shown in the OSOM map excerpt presented at Figure 4. Further to this, the Gannawarra Energy Storage System is located to the east of the site, for which like components have previously been transported to/from that site, and as such, we are satisfied that appropriate over-dimensional transport routes to/from the area are available.

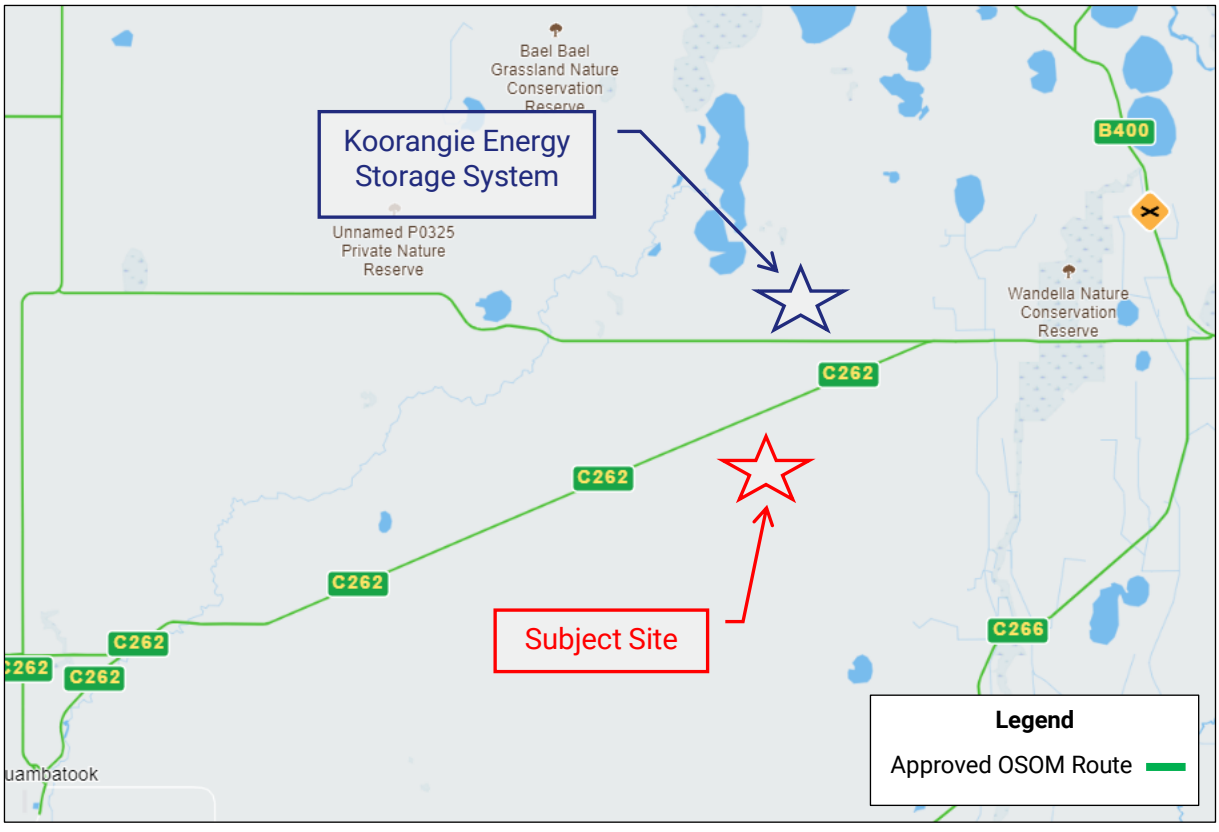


Figure 4: OSOM Network Map Excerpt

4.3. Heavy Vehicles

In addition to the over-dimensional traffic, there will be other construction traffic movements associated with the wind farm.

The total estimated number and type of vehicles expected during the construction period is presented in Table 5. The expected volumes have been advised by Normanville Energy Park Pty Ltd and appear largely consistent with those adopted for other wind farm developments in Victoria.

Table 5: Heavy Vehicle Traffic Volumes

Traffic Source	Overall No. of Vehicle Trips (Project Duration) [1]
Road Upgrades	17 trips
Site Establishment	25 trips
Dust Suppression	252 trips
Turbine Foundations	10 trips
Turbine Erection	13 trips
Electrical Infrastructure	550 trips
Concrete Delivery	1,181 trips
Concrete Mixing Materials	658 trips
Quarry Materials	1,842 trips
Total Trips	***4,548 trips [2]***

[1] One trip constitutes two movements, being the arrival and departure movements.

[2] 4,548 both entry and exit trips, that being a total of 9,096 road network movements.

Based on the above, the proposed wind farm could be expected to generate in the order of 4,548 heavy vehicle trips (excluding the over-dimensional vehicle movements) within the external road network over the 12-month construction period. This equates to approximately 16 heavy vehicle trips each day[3].

In addition to the truck movements within the external road network, there are expected to be a significant number of vehicle movements within the internal road network of the site. It is noted that these internal vehicle movements have not been excluded from Table 5, in other words Table 5 represents a conservative worst case traffic movement scenario. These internal movements are associated with the following:

- Concrete agitators
- Concrete Batching water

[3] Assumes an average of 24 working days for each month. 16 heavy vehicle entry and exit trips, that being a total of 32 road network movements each day.

- Water tankers for dust suppression
- Track construction
- Hardstand construction

It is re-emphasised that the volumes presented at Table 5 do not exclude internal road movements, therefore representing a conservative worst-case traffic movement scenario.

4.4. Light Vehicles

Personnel (Staff)

The level of personnel (staff) traffic will be dependent on the number of staff ultimately employed as part of the project. Across the project, an average of 60 personnel are anticipated on-site each day during the construction phase. Assuming one person per vehicle and a project duration of 12 months (average of 24 working days per month) this equates to a total of 17,280 light vehicle trips over the 12-month construction period.

4.5. Summary

Based on the above, a summary of the forecast of traffic generation during the wind farm construction is provided in Table 6.

Table 6: Total Construction Traffic Trips

Vehicle Type	Vehicle Trips [1]
Over Dimensional	544 trips
Heavy Vehicle	4,548 trips
Personnel (Light Vehicle)	17,280 trips
Total	***22,372 trips [2]***

[1] One trip constitutes two movements, being the arrival and departure movements.

[2] 22,372 both entry and exit trips, that being a total of 44,744 road network movements. Assuming a 12-month construction program, 24 working days per month, this equates to approximately 155 trips per day, being 310 road network movements per day.

5. Vehicle access to Wind Farm

5.1. Anticipated Traffic Routes

Portland is anticipated to be the port location where the wind turbine generator components will be delivered.

The VicRoads Class 1 pre-approved Oversized & Over Mass (OSOM) Annual Scheme Permit network map has been used to determine the most suitable route for the transport of the wind turbine generator components to the site.

The **proposed primary over-dimensional route (excluding wind blades)** to the site is as follows:

- Port of Portland
- Henty Highway (A200)
- Chrome Road
- Dartmoor-Hamilton Road (C187)
- Fairburns Road
- Glenelg Highway (B160)
- Henty Highway (A200)
- Jallumba-Mockinya Road
- Wonwondah-Toolondo Road
- Horsham-Noradjuha Road (C214)
- Wimmera Highway (B240)
- Curran Road
- Western Highway (A8)
- Borung Highway (C234)
- Henty Highway (B200)
- Birchip-Rainbow Road (C243)
- Sunraysia Highway (B220)
- Birchip-Wycheproof Road (C268)
- Dumosa-Birchip Road
- Calder Highway (A79)
- Donald-Swan Hill Road (C261)
- Dumosa-Quambatook Road (C262)
- Suttie Road
- Kerang-Quambatook Road (C262)

As the wind blades are the longest component to be delivered to the site an alternate OD route has been specifically identified for the **wind blade delivery route** to the site as follows:

- Port of Portland
- Henty Highway (A200)
- Chrome Road
- Dartmoor-Hamilton Road (C187)
- Fairburns Road
- Glenelg Highway (B160)
- Coleraine-Edenhope Road (C206)
- Nhill-Harrow Road (C206)
- Western Highway (A8)
- McKenzie Avenue
- Nelson Street
- Western Highway (A8)
- Borung Highway (C234)
- Henty Highway (A200)
- Galaquil East Road
- McLoughlans Road
- Sunraysia Highway (B220)
- Birchip-Wycheproof Road (C268)
- Donald-Swan Hill Road (C261)
- Calder Highway (A79)
- Donald-Swan Hill Road (C261)
- Dumosa-Quambatook Road (C262)
- Suttie Road
- Kerang-Quambatook Road (C262)

The route that is proposed to be adopted by over-dimensional traffic will be generally consistent with what has been utilised for the Murra Warra Wind Farm, located near Horsham and Warracknabeal, which required upgrade works along the length of this route (from the Port of Portland to Murra Warra Wind Farm) to facilitate these movements.

This section of the over-dimensional route (from the Port of Portland to Murra Warra Wind Farm) would be suitable for the transportation of wind turbine blades for the Project, and intersection upgrades would not be required, assuming that wind blades are consistent with (or shorter than) those used for the Murra Warra Wind Farm. Notwithstanding, an assessment has been prepared for a wind blade length of up to 90m to show the potential

upgrades required for a wind blade up to this length for the sections of Portland to Murra Warra Wind Farm route, which are consistent with those of the project.

Any additional upgrades to the road network or intersections that may be required along this route as a part of this project (e.g. between Portland and the Murra Warra Wind Farm) would be derived as part of the detailed Traffic Management Plan, following confirmation of the wind blade specifications. It is emphasised that such a final assessment can only occur once the specific wind blade model and length have been confirmed, prior to construction, that is, are blades similar, longer or shorter than those transported to the Murra Warra Wind Farm, and for a route of intersections/roads which have already been upgraded to allow for those movements. Additionally, the swept path assessment prepared for key intersections within and surrounding the site are based on a wind blade length of up to 90m and would themselves need to be refined in future to reflect the exact wind blade length.

It is understood as part of that project that one of (if not the tightest) locations for wind blade transportation was the right-turn bend of the Western Highway through the Nhill township. Given this, and a proposed wind blade length of up to 90m, Traffix Group has identified an alternate route through the Nhill township. Whilst the Murra Warra Wind Farm route through Nhill may still be viable, subject to the exact wind blade length and transportation vehicle utilised as part of this project, there are considered to be substantial limitations to completing further mitigating works at this right-turn bend in Nhill to enable wind blade transportation (e.g. War Memorial, gardens and vegetation, utility services).

A comparison of the Murra Warra Wind Farm route, and that proposed for the Normanville Energy Park, through the Nhill township, is presented in Figure 5. Further to this, a swept path assessment of the proposed route through Nhill at key locations, is presented within Appendix B.

Figure 5: Over-Dimensional Wind Blade Transport Route Comparison Through Nhill Township

The proposed over-dimensional routes will also incorporate a number of railway crossings (e.g. on Donald-Swan Hill Road immediately west of the Calder Highway). The ability for vehicles to utilise these crossings, and any associated permits and/or modifications to the crossings, are to be further investigated as part of future works, in conjunction with the responsible authority. We understand through correspondence with the Department of Transport and Planning that the management of OSOM vehicle crossing arrangements at the Donald-Swan Hill Road and other locations must be completed in consultation with the relevant rail authority to be appropriately managed.

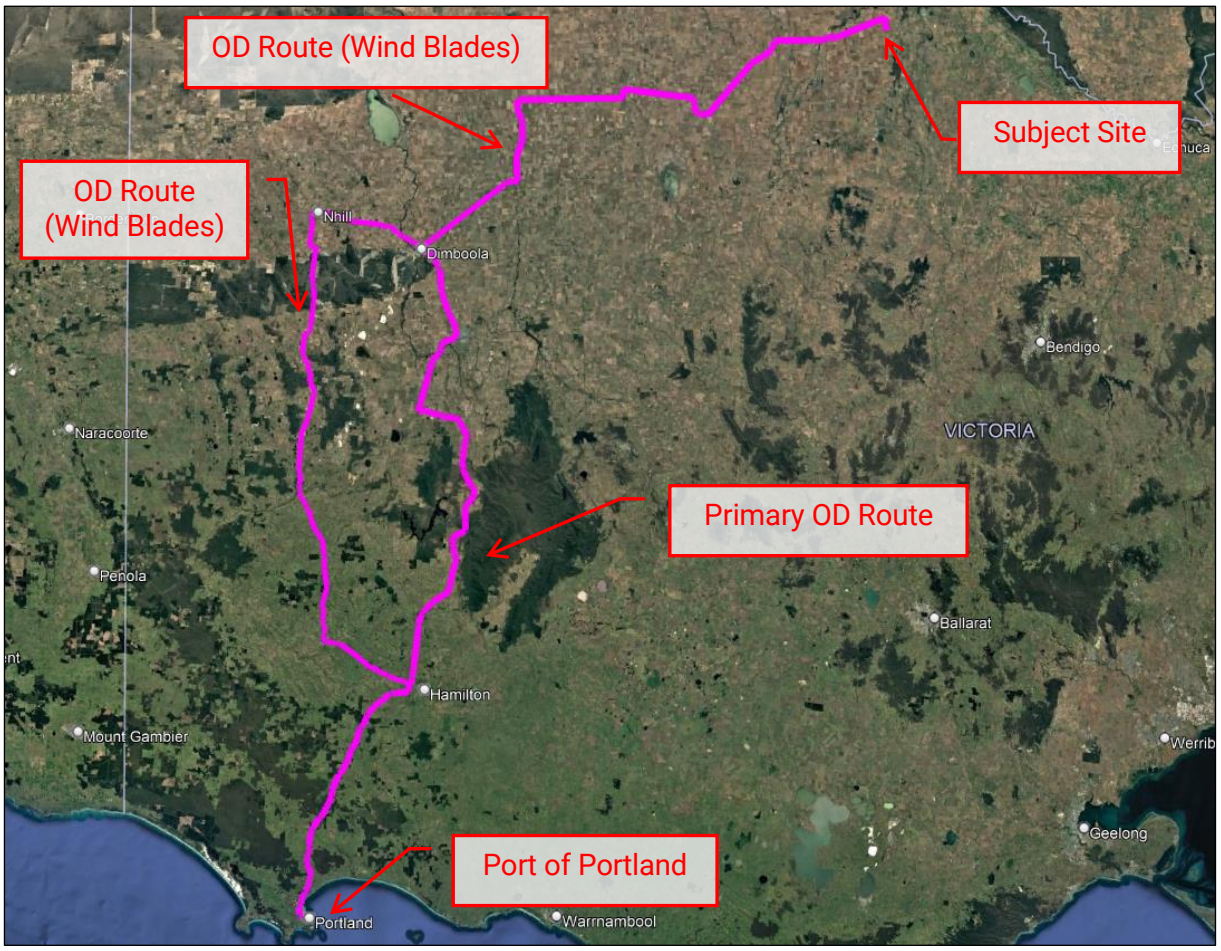


Figure 6: Portland to Site Transport Routes

The Project has identified two off-site quarries for the delivery of quarry sources and materials to the Project Area. The proposed quarries are:

- Lake Boga Quarry (56km from Normanville) and
- Oakvale Quarry (42km from Normanville).

The types of vehicles that would carry quarry materials to the Project will likely be standard soil delivery vehicles that do not require an over dimensional permit to travel to the site.

The proposed delivery route of quarry delivery vehicles are presented at Figure 7 and Figure 8 for the Lake Boga Quarry and Oakvale Quarry, respectively.

Figure 7: Lake Boga Quarry Delivery Route to Normanville

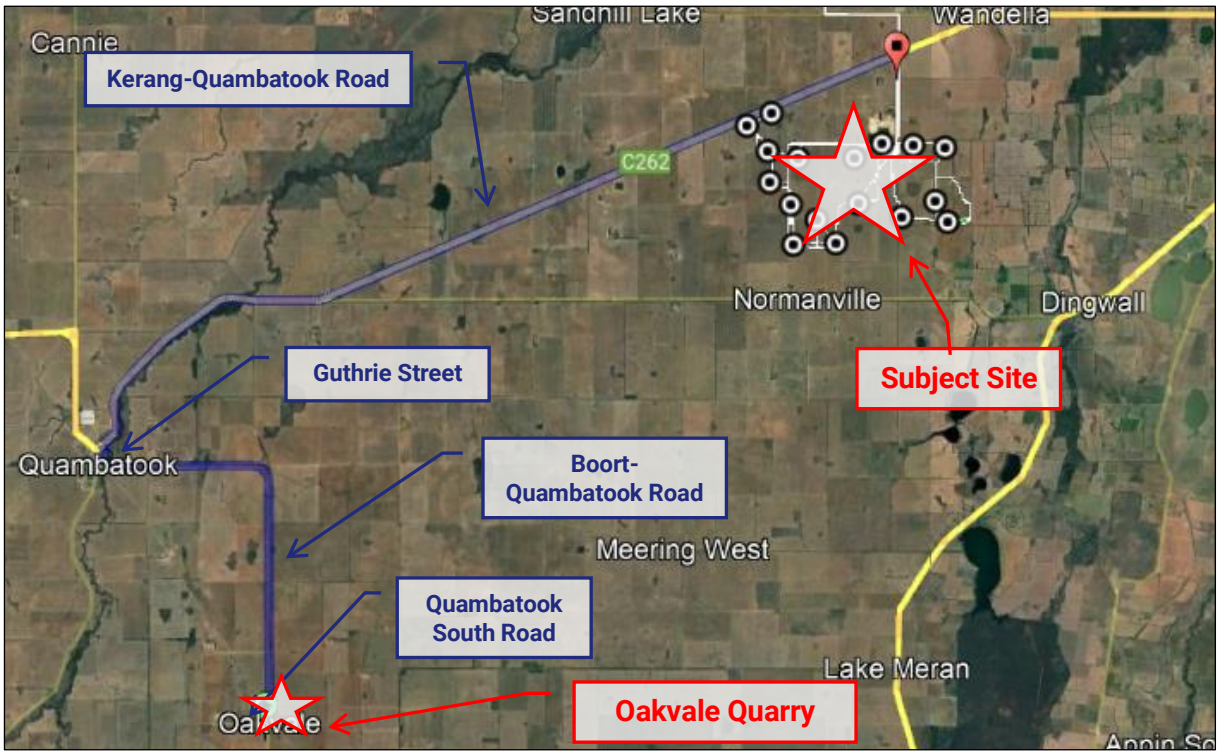


Figure 8: Oakvale Quarry Delivery Route to Normanville

5.2. Swept Path Assessment

The proposed wind turbine generators will have a blade length of up to 90m with the blades being the longest component to transport. As the specific turbine and wind blades to be utilised are still to be determined, Traffix Group has undertaken the assessment based on a 90m length as representative of the upper limit of the length of any wind blades which would need to be transported.

The swept path results are presented in Appendix B with the over-dimensional vehicle profile used for the swept path assessment presented in Figure 9.

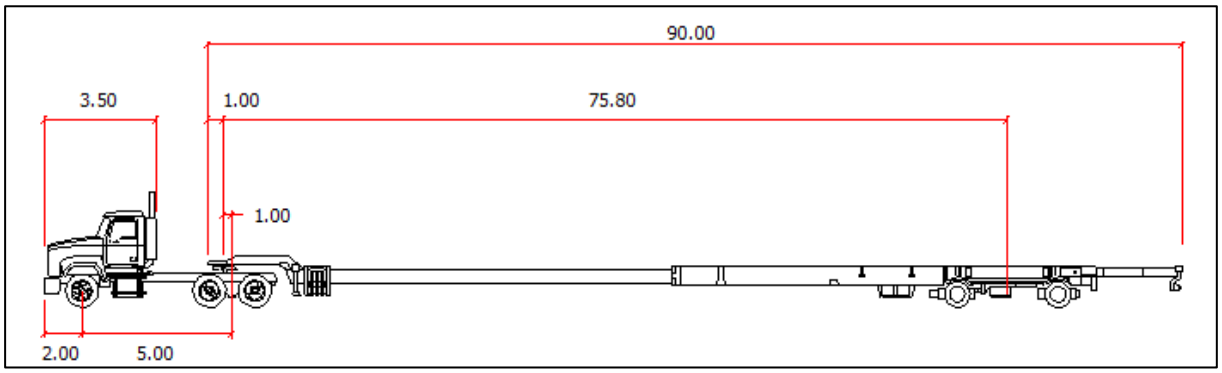


Figure 9: Over-dimensional Design Vehicle (Total Vehicle length – 95m)

Swept path assessments are provided at Appendix B which present the proposed route between the Port of Portland and Warracknabeal township, including the potential detour

around the Nhill township discussed previously. It is re-emphasised that whilst the route between the Port of Portland and Warracknabeal is generally consistent with what was used for the Murra Warra Wind Farm (except for the detour at the Nhill township), the Murra Warra Wind Farm project utilised blade lengths that were less than 90m, and hence a shorter vehicle length than that assessed within Appendix B.

Between Warracknabeal and the Project Area (e.g. east of the Port of Portland to Murra Warra Wind Farm route), additional swept path assessments (using AutoTURN) have been undertaken for the following key intersections, which are presented within Appendix B:

- Kerang-Quambatook Road / Site Access (approx. 5km west of Denyer Road)
- Henty Highway / Galaquil East Road
- McLoughlans Road / Sunraysia Highway
- Birchip-Wycheproof Road / Donald-Swan Hill Road
- Donald-Swan Hill Road / Calder Highway
- Borung Highway / Henty Highway

5.3. Vehicle Access to Wind Farm

The road width requirements for over-dimensional vehicles delivering the wind turbine generator components have been assessed through site inspections and electronic vehicle swept path assessments using AutoTURN computer software.

After unloading, it will be possible for the length of the trailers of the over-dimensional vehicles to be reduced. As such, the impact of the vehicles on exit from the site will be less than that of entry movements. Therefore, only the entry movements have been assessed through the swept path assessment.

The swept path assessment indicates that the over-dimensional vehicle will extend beyond the available road width. The major potential[4] impacts as a result of the over-dimensional blade vehicle are summarised within Table 7.

[4] The specific impacts would be subject to confirmation of the wind blade length, with findings based upon a blade length of 90m.

Table 7: Swept Path Assessments - Intersection Modification Summary

Intersection	Comments
Port of Portland to Warracknabeal (excluding Nhill Township Detour)	
No. 2 Quay Road / Henty Highway	Future load height clearance assessment[5] required to inform potential removal or widening of Port of Portland gate and fence. Relocation of light pole and temporary removal of signage.
Henty Highway / New Street	Light pole relocation, temporary removal of signage and limited vegetation lopping/removal required.
Henty Highway / Chrome Road	Road shoulder widening and vegetation removal/lopping required.
Dartmoor-Hamilton Road / Chrome Road	Limited vegetation lopping/removal, relocation of signage required. Chrome Road traffic island to be made mountable.
Dartmoor-Hamilton Road / Fairburns Road	Limited vegetation lopping/removal, relocation of signage required. Fairburns Road traffic island to be made mountable.
Glenelg Highway / Fairburns Road	Vegetation lopping/removal required. Significant road shoulder widening within northern Glenelg Highway verge. Relocation of existing culvert within southern Glenelg Highway verge.
Glenelg Highway / Coleraine-Edenhope Road	Road shoulder widening required, including levelling of western Coleraine-Edenhope Road verge.
Coleraine-Edenhope Road / Nhill-Harrow Road	Road shoulder widening and vegetation lopping/removal required.
Nhill-Harrow Road curve at approximately 800m east of Blackers Road	Minor vegetation lopping/removal required.
Nhill-Harrow Road curve at Blackers Road	Minor vegetation lopping/removal required.
Nhill-Harrow Road curve at Goroke-Nurcuong Road	Minor vegetation lopping/removal required.
Nhill-Harrow Road curve at Mill Swamp Lane	Minor vegetation lopping/removal required.
Nhill-Harrow Road curve at D Manns Lane	Minor vegetation lopping/removal required.

[5] Assessment to be completed as part of Traffic Management Plan.

Intersection	Comments
Port of Portland to Warracknabeal (excluding Nhill Township Detour)	
Nhill-Harrow Road curve at Pilgrims Road	Minor vegetation lopping/removal required.
Western Highway / Borung Highway	Removal of existing signage. Borung Highway traffic island to be made mountable.
Nhill Township Detour	
Nhill-Harrow Road / Western Highway	Power pole relocation, road shoulder widening and limited vegetation removal/lopping
Western Highway / McKenzie Avenue	Light pole relocations, road shoulder widening and vegetation removal/lopping
McKenzie Avenue / Nelson Street	Power pole relocation, road shoulder widening and vegetation removal/lopping. Future detailed assessment to confirm fencing modifications and culvert extension extent.
Nelson Street / Western Highway	Temporary removal of 3 x on-street car parking spaces and signage
General Route	
Kerang-Quambatook Road / Site Access	Vegetation lopping / removal required.
Henty Highway / Galaquil East Road	Road shoulder widening and limited vegetation lopping / removal required. Relocation of railway crossing signage.
McLoughlans Road / Sunraysia Highway	Road shoulder widening. Potential relocation/removal of road safety barrier on west side of McLoughlans Road (subject to height clearance assessment).
Birchip-Wycheproof Road / Donald-Swan Hill Road	Road shoulder widening and vegetation lopping / removal required. Modifications to splitter island on Donald-Swan Hill Road and signage removal.
Donald-Swan Hill Road / Calder Highway	Limited vegetation lopping / removal required. Modifications to splitter islands on Donald-Swan Hill Road and signage removal.
Borung Highway / Henty Highway	Road shoulder widening. Signage removal.

Intersection	Comments
Port of Portland to Warracknabeal (excluding Nhill Township Detour)	
	Potential railway crossing signage/signal relocation (subject to further assessment)

Further to Table 7 it is noted that the Denyer Road / Kerang-Quambatook Road intersection would be utilised for light and heavy vehicle movements, but not over dimensional deliveries. Given this, and noting the existing Gannawarra Landfill on Denyer Road, this intersection is considered appropriate to accommodate the turning movement spatial requirements of these heavy vehicle movements. That is, not swept path assessment has been completed at the Denyer Road / Kerang-Quambatook Road intersection.

6. Traffic Considerations

6.1. Daily Traffic on Surrounding Roads

Utilising the existing traffic survey volumes presented in Section 2.4 and the traffic generation estimates provided in Section 4.5, a broad estimate of the post development daily traffic volumes on the surrounding road network is provided in Table 8.

The assessment assumes that all site is generated traffic would utilise Kerang-Quambatook Road (either via the proposed access point or in accessing Denyer Road). Site generated traffic on Kerang-Quambatook Road would be split between movements to/from the east of Denyer Road and movements to/from the west of Denyer Road. For the purposes of this assessment and noting there are unknowns as to where workers will be located as well as the location of external material to be sourced, this report has conservatively assumed at a single point within Kerang-Quambatook Road that all site generated movements will occur.

Table 8: Anticipated Construction Traffic Volumes

Road	Daily Traffic Volumes			
	Existing (vpd*)	Additional (vpd) [1]	Total during Construction (vpd)	Theoretical Road Capacity
Kerang-Quambatook Road	299 vpd	+75 vpd	374 vpd	2,500-6,000 vpd
Denyer Road	36 vpd	+71 vpd [2]	111 vpd	0-2,500 vpd

* vpd denotes vehicles per day
[1] Based on an overall traffic generation of 21,704 movements (i.e. double the number of trips) spread evenly over a 12-month construction period and assuming 24 working days per month. This equates to a total of 150 vehicle movements per day (i.e. 75 arrival trips and 75 departure trips).
[2] Assumes all over dimensional vehicles access the site via the Kerang-Quambatook Road access point, thus do not generate additional movements on Denyer Road.

Table 8 indicates that all roads are anticipated to operate within their theoretical capacity during construction.

6.2. Portland to Site Traffic Route

The section of the route from Portland to the Murra Warra Wind Farm is consistent with the preferred route previously identified in conjunction with relevant authorities for that project, other than the Nhill township route (as discussed previously). The remaining section of the route is generally contained to the OSOM and arterial road network (DTP controlled roads) and seeks to minimise impacts on surrounding residential communities. All roads on the route are configured with at least a sealed single traffic lane in each direction.

6.3. Rock Source Material

The source of rock material includes the following external local quarries:

- Sandstone from Oakvale Quarry.
- Granite hard rock from Lake Boga Quarry.

6.4. Concrete deliveries

We have been advised by the Applicant that one concrete batching plant will be used on-site. Aggregate for the concrete batching plant will be sourced externally, with these vehicle movements outlined within Section 4.2.

6.5. Operational Traffic

Traffic generated during the operation of the wind farm will be negligible and will generally consist of maintenance vehicles.

Accordingly, there is expected to be negligible impact from the wind farm to the operation of the surrounding road network once the wind farm is operational.

7. Other Considerations

7.1. Site Access Intersection Upgrades

A swept path assessment of the over-dimensional site access intersection with Kerang-Quambatook Road is shown in Appendix B. This assessment indicates the minimum spatial requirements to satisfactorily accommodate entry for vehicles up to and including the wind blade transport vehicle. This will require trees to be pruned/removed in order to accommodate the vehicle swept path requirements at this location.

No formal turning treatments are considered required at this location or other site access locations given the relatively low existing and expected traffic volumes, existing gravel road shoulders on Kerang-Quambatook Road, generally flat topography of the area as well as straight road alignment.

Both existing and additional development traffic volumes on all key roads mentioned previously in this report are relatively low, relative to these roads' theoretical capacity.

Having regard to this, no additional turning treatments or upgrades are considered required (other than those for over-dimensional vehicles).

7.2. Traffic Management Plan

A Traffic Management Plan (TMP) will be prepared to outline the key traffic considerations of the wind farm construction process and its ongoing operation. The TMP will be developed upon selection of the final wind turbine model and is envisaged to be a condition requirement of the Planning Permit and subsequently prepared and submitted as part of the secondary consent process. The TMP will include:

- Further identification of construction, delivery vehicle routes, and site access strategy to the wind farm site.
- Recommended hours of operation and speed limit for trucks.
- Any mitigation works required to offset the impactions of construction vehicles.
- Identification of a timetable of required pre-construction road works.
- Identification of timing and extents of temporary traffic management treatments.

It is expected that the TMP will be prepared in consultation with DTP and Gannawarra Shire Council.

7.3. Underground Transmission Line Installation

It is understood that an underground transmission line is proposed to extend from the Project boundary to the Koorangie Terminal Station. This line would cross Kerang-Quambatook Road, noting this road is under the control of DTP (being located within a Transport Zone 2), as well as Lalbert-Kerang Road and Denyer Road, both of which are local roads controlled by Gannawarra Shire Council.

We have been advised that the proposed construction methodology will likely be underground directional drilling, which will not impact on the surface of each road, except where pits will be constructed approximately every 125m. It is expected that this construction methodology may require temporary traffic management (partial or full road closures) on each of the abovementioned roads, with the exact traffic management requirements to be determined as part of a TMP. Any form of traffic management would need to be approved by the relevant road authority.

8. Conclusions and Recommendations

Based on the analysis and discussions presented within this report, the following conclusions are made:

a) Current plans propose up to 17 wind turbine generators with a maximum tip height of 280m.

b) This assessment undertook analysis of proposed traffic movements to, from, and around the project site. Traffix Group understands that the proponent will utilise nearby commercial quarries at Lake Boga Quarry and Oakvale Quarry as material sources instead of developing an on-site quarry. This assessment has considered these commercial quarries as the sources of material for the project. Traffic movements between the quarries and the site are expected to be generally confined to the gazetted B-Double heavy vehicle road network which are designed to accommodate such loads.

c) The wind farm proposal is estimated to generate 22,372 total construction vehicle trips over a 12-month period. Assuming 24 working days per month this equates to 155 daily both entry and exit trips, that being a total of 310 road network movements per day.

d) The increase in traffic volumes on key surrounding roads will not exceed their theoretical capacity and we are satisfied that there will be no unreasonable traffic impact generated by this proposal.

e) Swept path diagrams of the largest over-dimensional vehicle (carrying a blade length of up to 90m) found that there will be some instances where the over-dimensional vehicle will extend beyond the available road width; with road widening and mitigation measures identified that will likely be minimal and reasonable.

f) Recent road upgrades undertaken for the Murra Warra Wind Farm will significantly reduce the extent and number of upgrades required to facilitate delivery of large components from the Port of Portland to Murra Warra.

g) In order to accommodate the wind blade trucks and the traffic associated within the construction for the section of the route beyond Murra Warra, the following mitigating road works are recommended:

    a. Temporary removal of street signs and furniture and trimming of vegetation within the swept path extents (including the wind blade rear overhang).

    b. Additional widening and works at key intersections, associated with over dimensional deliveries, as outlined within the report.

h) A Traffic Management Plan should be required as part of a Planning Permit condition to outline the key traffic considerations during the construction, operation and decommissioning phases of the project.

Appendix A

Site Inspection Photographs

Photograph 1:

Kerang-Quambatook Road

View East

Photograph 2:

Kerang-Quambatook Road

View West

Photograph 3:

Normanville Road

View East

Photograph 4:

Normanville Road

View West

Photograph 5:

Robinson Road

View North

Photograph 6:

Robinson Road

View South

Photograph 7:

Denyer Road

View South

Photograph 8:

Denyer Road

View North

Appendix B

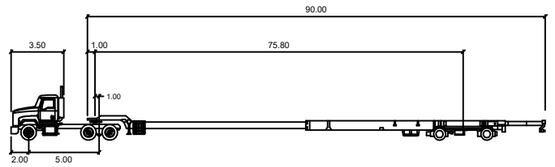
Swept Path Diagrams

Port of Portland to Warracknabeal

NO. 2 QUAY ROAD / HENTY HIGHWAY - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailor Track	: 2.50		

LEGEND

REAR WHEELS
FRONT WHEELS
VEHICLE BODY
BODY CLEARANCE

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

NO. 2 QUAY ROAD

EXISTING FENCE AND GATE TO POTENTIALLY BE REMOVED OR WIDENED, SUBJECT TO LOAD HEIGHT ASSESSMENT

93.4 sq.m

30.2 sq.m

EXISTING FENCE AND GATE TO POTENTIALLY BE REMOVED OR WIDENED, SUBJECT TO LOAD HEIGHT ASSESSMENT

EXISTING SIGNAGE TO BE REMOVED

EXISTING LIGHT POLE TO BE RELOCATED

ADVERTISED PLAN

HENTY HIGHWAY

EXISTING LIGHT POLE

31 sq.m

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	09-08-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
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C	06-09-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM NEARMAP

PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP DATA

FILE NAME: G31803-04

SHEET NO.: 01

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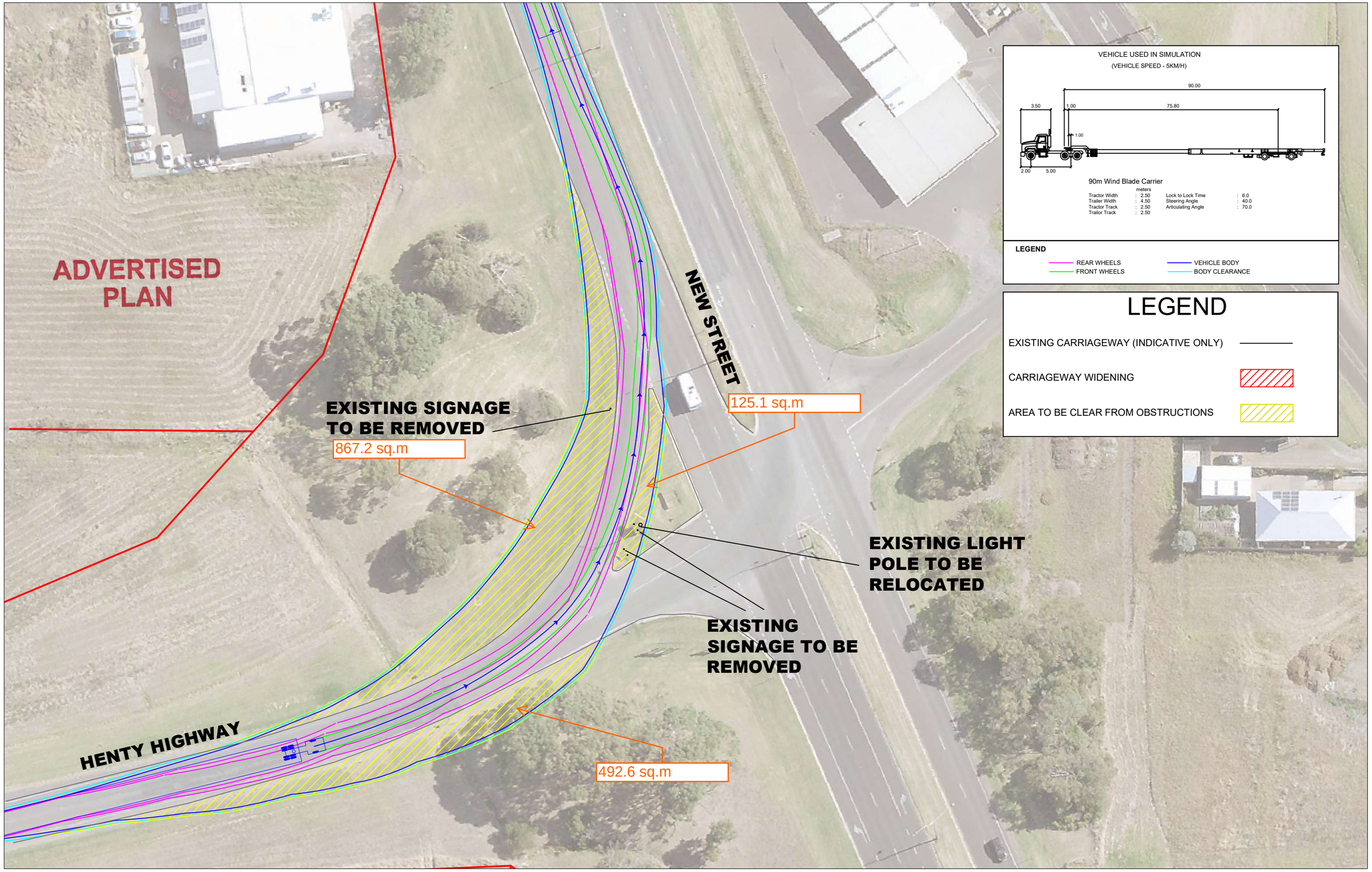
HENTY HIGHWAY / NEW STREET - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS



VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)

90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailor Track	: 2.50		

LEGEND

REAR WHEELS
FRONT WHEELS
VEHICLE BODY
BODY CLEARANCE

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

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D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

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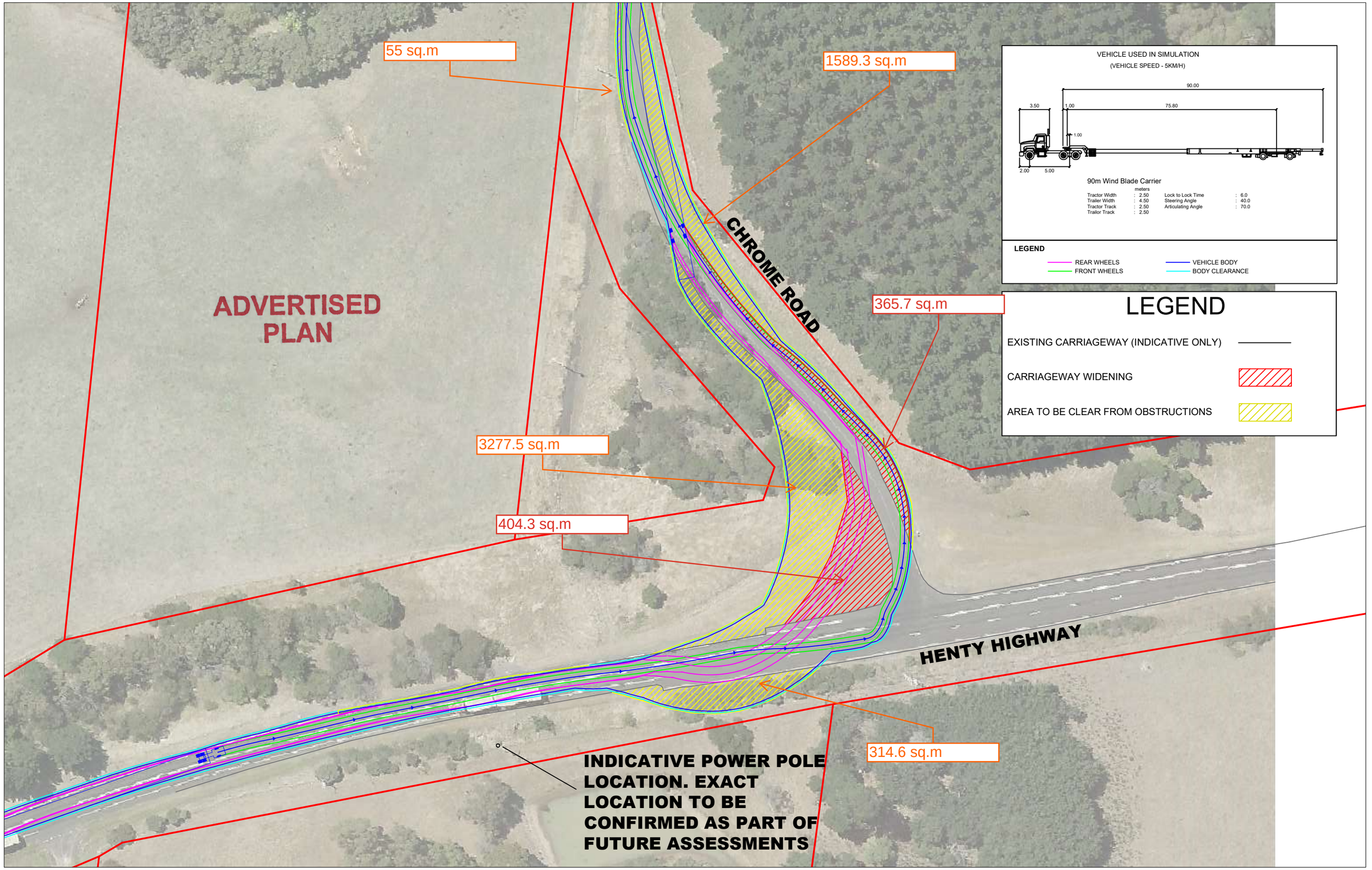
HENTY HIGHWAY / CHROME ROAD - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS



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D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK
PROPOSED ENERGY FARM

GENERAL NOTES:

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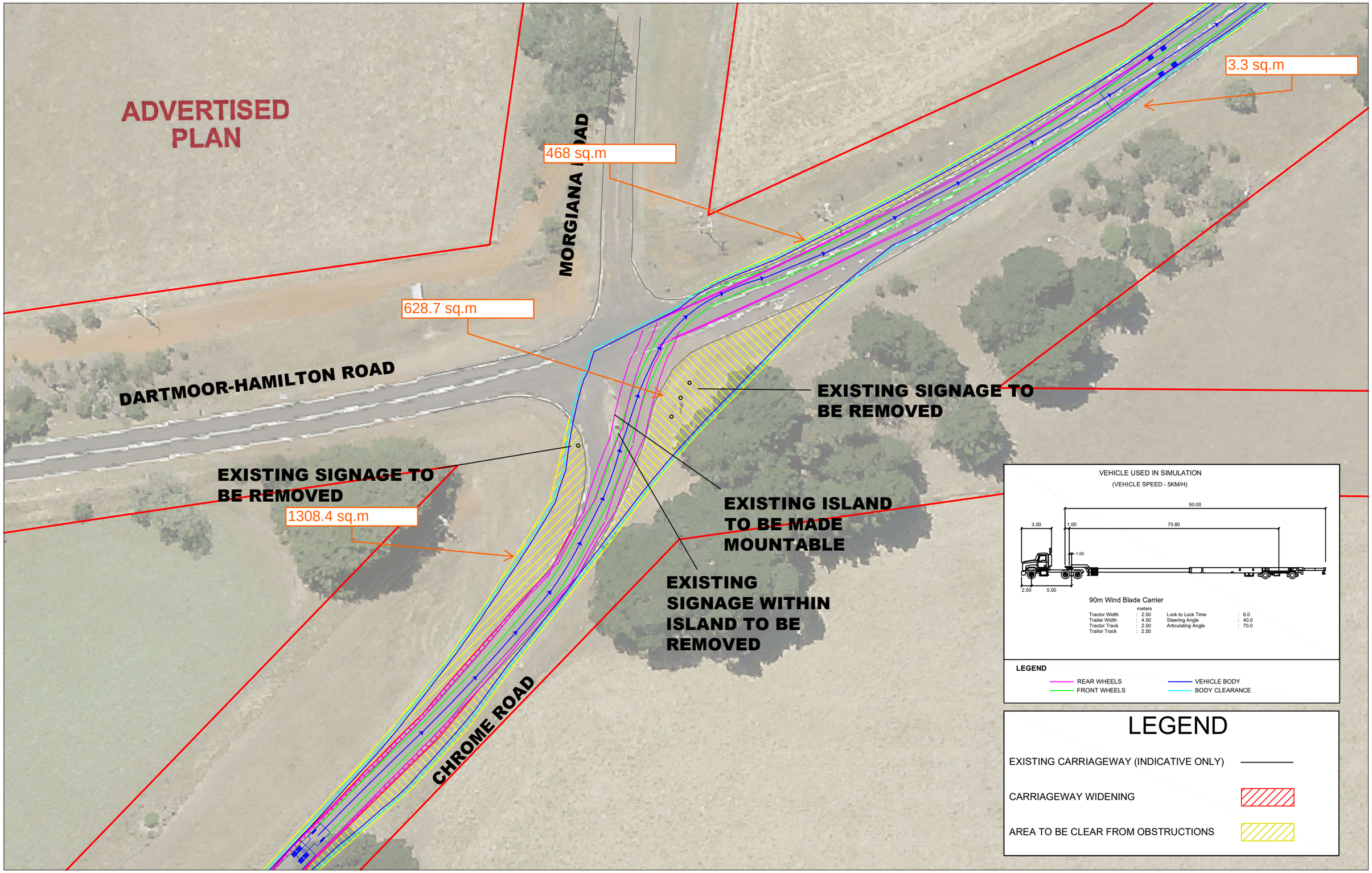
DARTMOOR-HAMILTON ROAD / CHROME ROAD - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS



VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)

90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailor Track	: 2.50		

LEGEND

REAR WHEELS — VEHICLE BODY
FRONT WHEELS — BODY CLEARANCE

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

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D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK
PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM GOOGLE SATELLITE
PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

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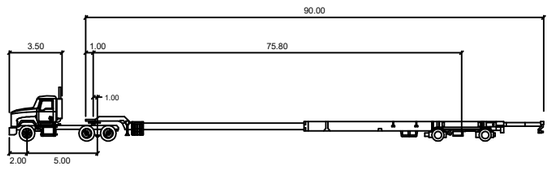
DARTMOOR-HAMILTON ROAD / FAIRBURNS ROAD - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailor Track	: 2.50		

LEGEND

REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

ADVERTISED PLAN

PROPERTY TITLE BOUNDARY AS PER VICPLAN. TO BE REVIEWED AS PART OF TMP

EXISTING S… TO BE REMOVED

233.6 sq.m

CLIFTON ROAD

FAIRBURNS ROAD

483.6 sq.m

476.6 sq.m

EXISTING ISLAND TO BE MADE MOUNTABLE AND SIGNS REMOVED

DARTMOOR-HAMILTON ROAD

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WARRACKNABEAL ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM GOOGLE SATELLITE

PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04

SHEET NO.: 05

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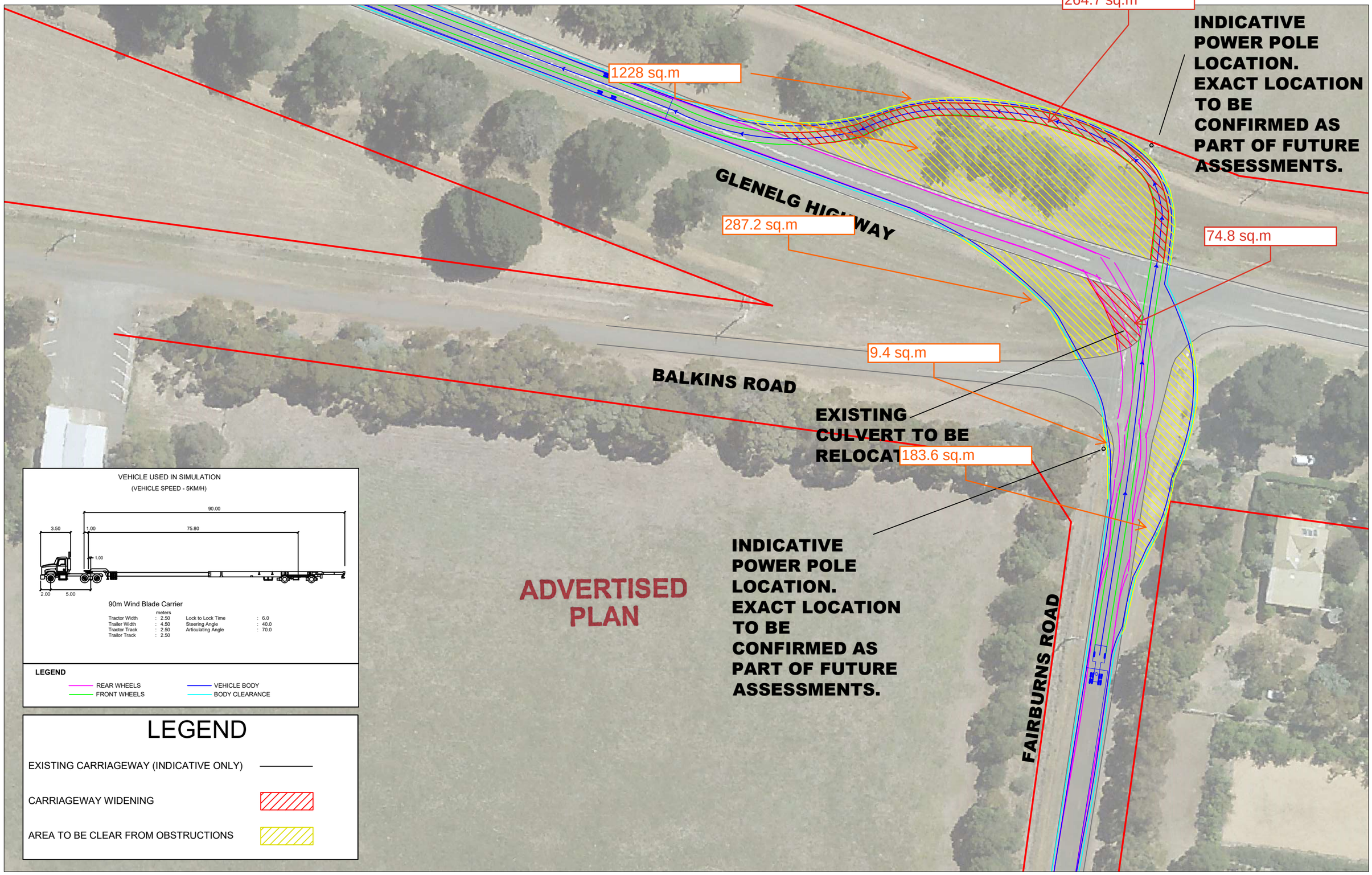
FAIRBURNS ROAD / GLENELG HIGHWAY - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS



VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)

90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailor Track	: 2.50		

LEGEND

REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

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D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM GOOGLE SATELLITE

PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04

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SCALE: 1:800 (A3)

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GLENELG HIGHWAY / COLERAINE-EDENHOPE ROAD INTERSECTION - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS

ADVERTISED PLAN

COLERAINE-EDENHOPE ROAD

207.1 sq.m

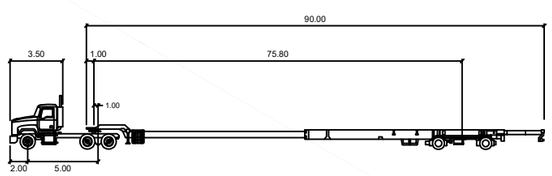
LEVEL OF VERGE TO BE RAISED TO MATCH EXISTING CARRIAGEWAY

527.6 sq.m

INDICATIVE ASSUMED LOCATION OF PROPERTY BOUNDARY BASED ON EXISTING FENCE LINE. EXACT LOCATION TO BE CONFIRMED AS PART OF FUTURE ASSESSMENTS

1480.6 sq.m

VEHICLE USED IN SIMULATION
(VEHICLE SPEED - 5KM/H)



90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailor Track	: 2.50		

LEGEND

REAR WHEELS
FRONT WHEELS
VEHICLE BODY
BODY CLEARANCE

EXISTING SIGNAGE

253.4 sq.m

GLENELG HIGHWAY

13 sq.m

EXISTING BRIDGE AND ROAD SAFETY BARRIERS

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	06-08-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
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D	10-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)
D	10-10-24	REVISED DUE TO VEGETATION	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK
PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM GOOGLE SATELLITE
PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04
SHEET NO.: 07

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SCALE: 1:1000 (A3)
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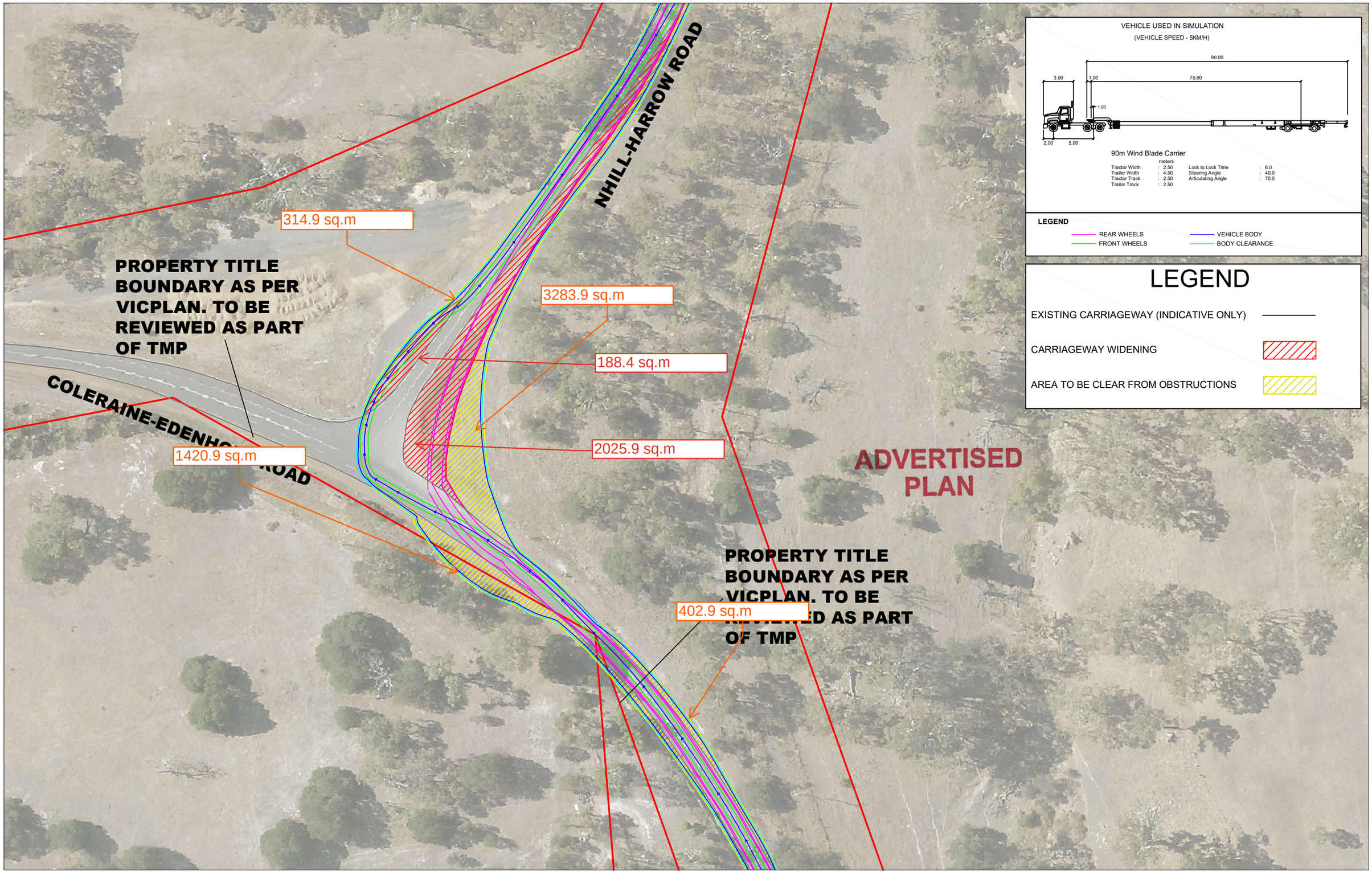
NHILL-HARROW ROAD / COLERAINE-EDENHOPE ROAD INTERSECTION - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS



VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)

90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailor Track	: 2.50		

LEGEND

REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

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D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM GOOGLE SATELLITE

PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04

SHEET NO.: 08

N

SCALE: 1:1000 (A3)

0 10 20

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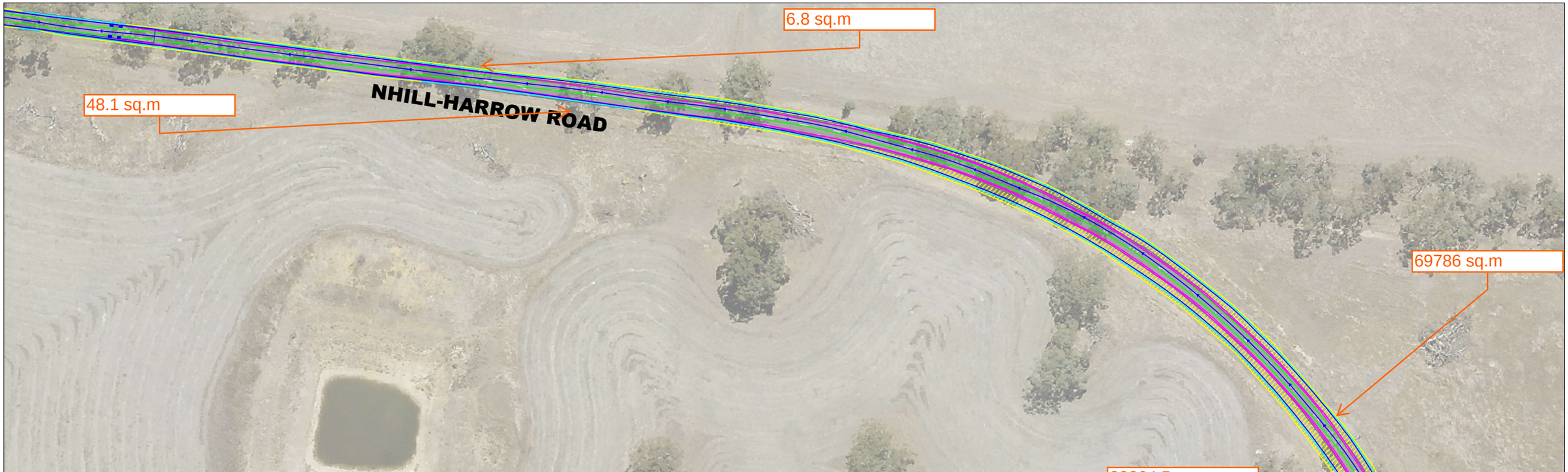
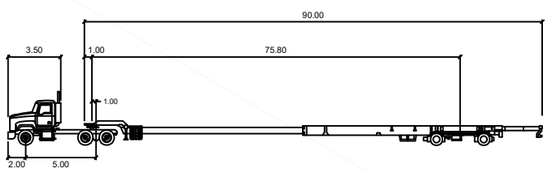
NHILL-HARROW ROAD CURVE AT APPROXIMATELY 800M EAST OF BLACKERS ROAD - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS



VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailor Track	: 2.50		

LEGEND

REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY) ——————

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

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WARRACKNABEAL ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM GOOGLE SATELLITE

PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04

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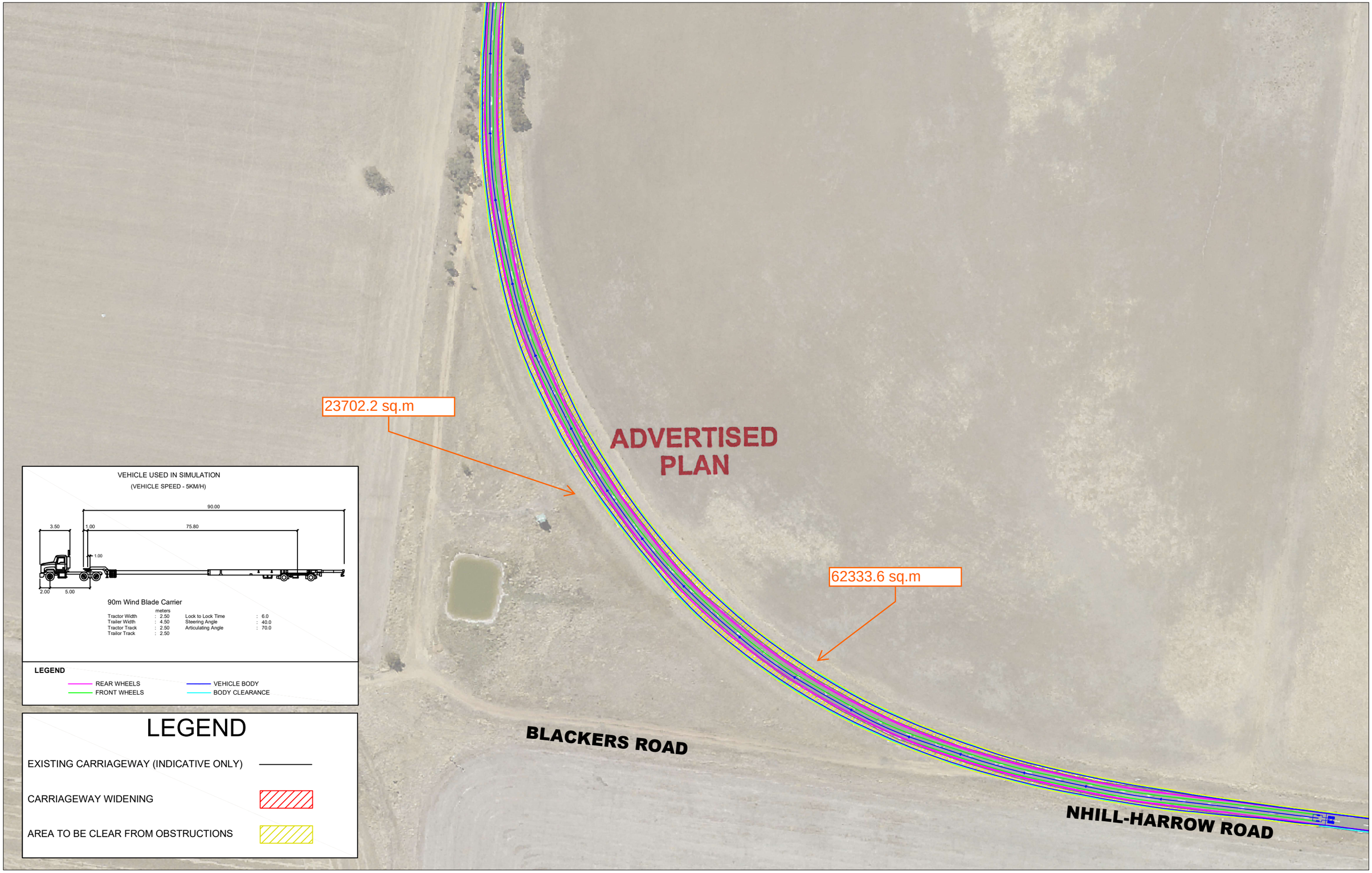
NHILL-HARROW ROAD CURVE AT BLACKERS ROAD - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS



VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)

90m Wind Blade Carrier

	meters		
Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailor Track	: 2.50		

LEGEND

REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	09-08-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	14-08-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
C	06-09-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM GOOGLE SATELLITE

PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04

SHEET NO.: 10

N

SCALE: 1:1200 (A3)

0 12 24

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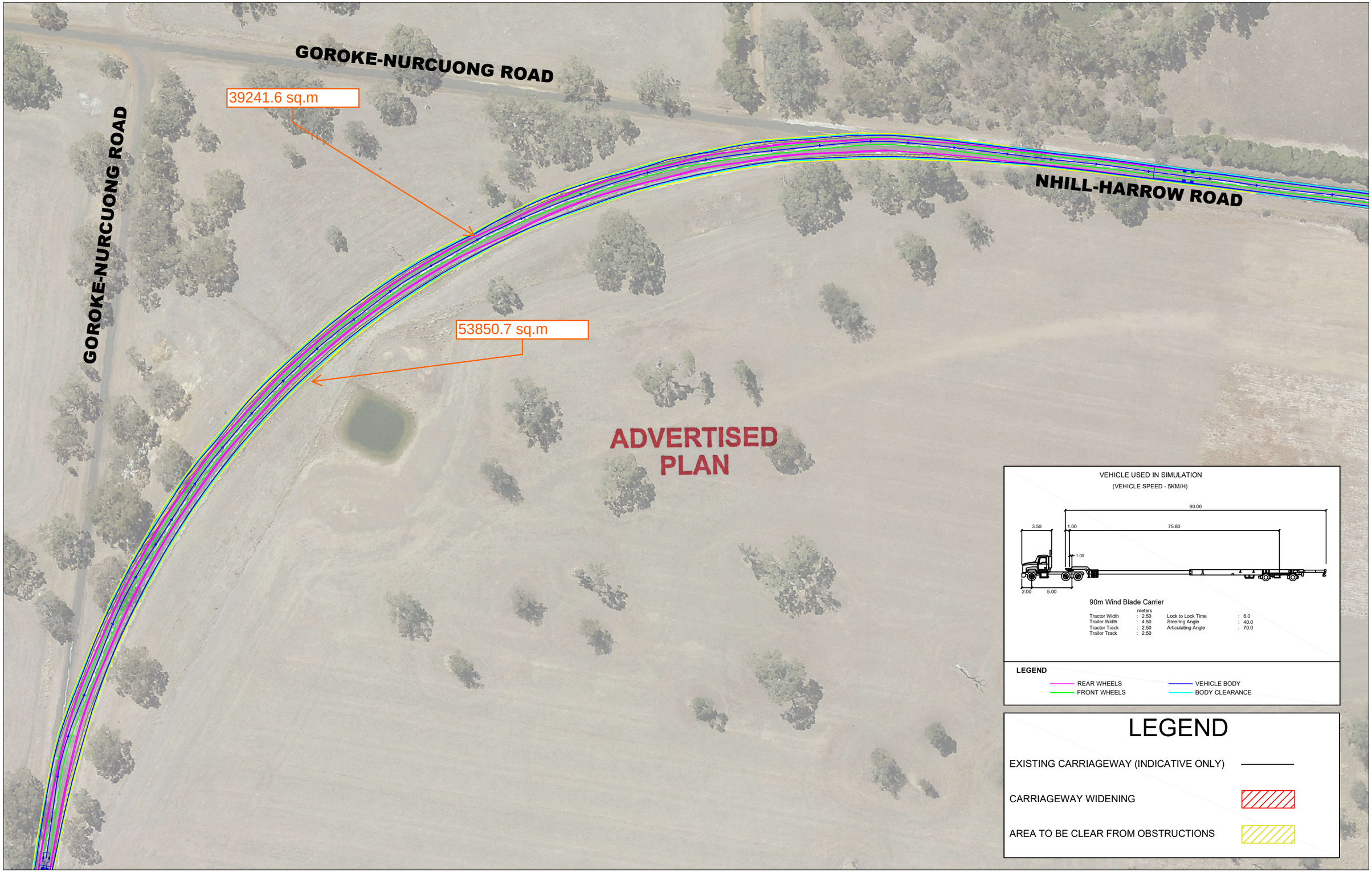
NHILL-HARROW ROAD CURVE AT GOROKE-NURCOUNG ROAD - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS



VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)

90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailor Track	: 2.50		

LEGEND

REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	09-08-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	14-08-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
C	06-09-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM GOOGLE SATELLITE

PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04

SHEET NO.: 11

N

SCALE: 1:1200 (A3)

0 12 24

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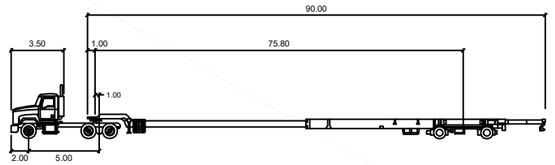
NHILL-HARROW ROAD CURVE AT MILL SWAMP LANE - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



90m Wind Blade Carrier

meters

Tractor Width	:	2.50	Lock to Lock Time	:	6.0
Trailer Width	:	4.50	Steering Angle	:	40.0
Tractor Track	:	2.50	Articulating Angle	:	70.0
Trailor Track	:	2.50			

LEGEND

REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

72446.7 sq.m

72861.5 sq.m

NHILL-HARROW ROAD

MILL SWAMP LANE

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	09-08-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	14-08-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
C	06-09-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM GOOGLE SATELLITE

PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04

SHEET NO.: 12

N

SCALE: 1:1200 (A3)

0 12 24

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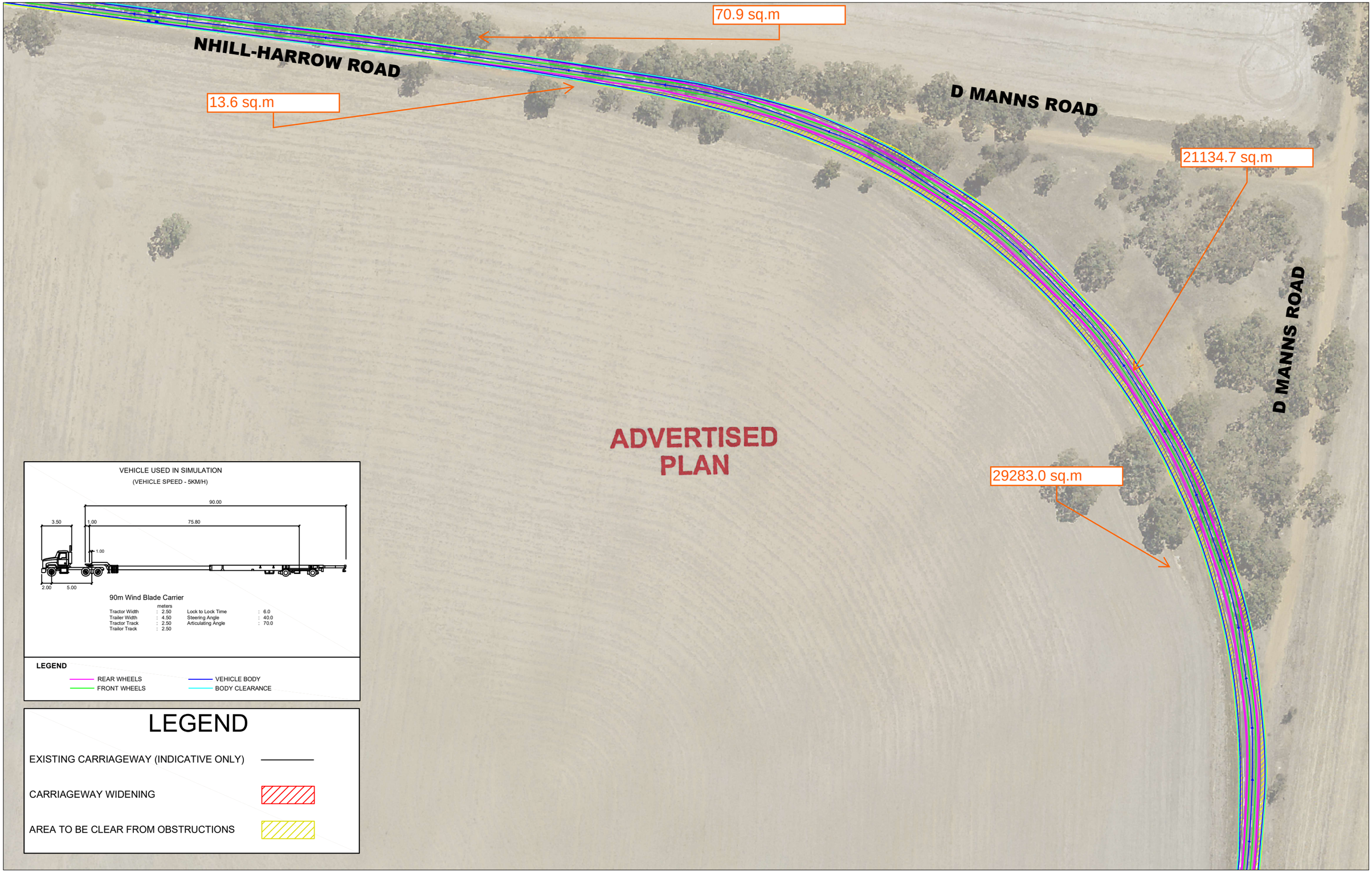
NHILL-HARROW ROAD CURVE AT D MANNS LANE - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS



VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)

90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailor Track	: 2.50		

LEGEND

REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	09-08-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	14-08-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
C	06-09-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM NEARMAP

PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04

SHEET NO.: 13

N

SCALE: 1:1200 (A3)

0 12 24

Traffix Group

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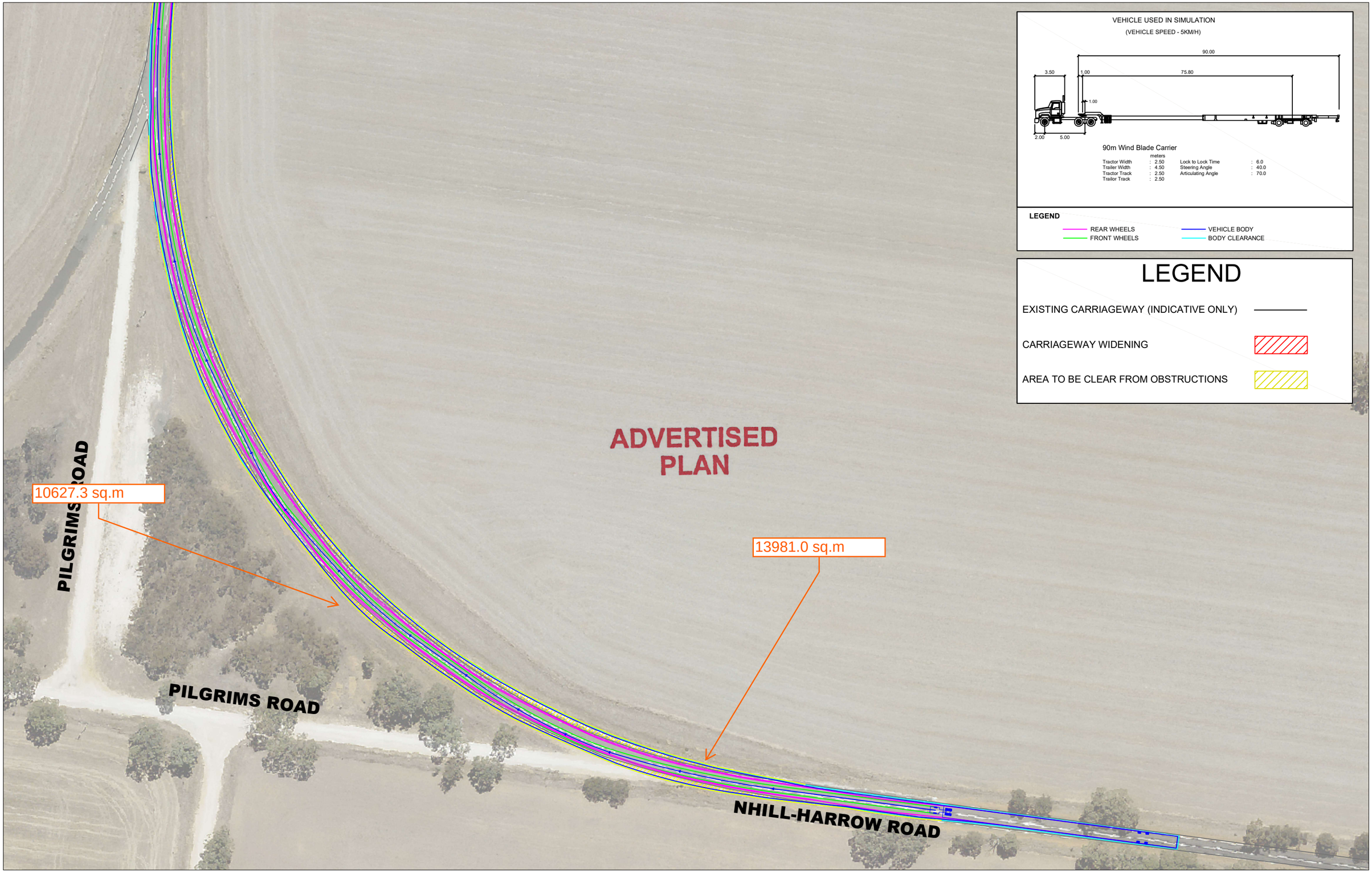
NHILL-HARROW ROAD CURVE AT PILGRIMS ROAD - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS



VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)

90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailor Track	: 2.50		

LEGEND

REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	09-08-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	14-08-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
C	06-09-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM GOOGLE SATELLITE

PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04

SHEET NO.: 14

N

SCALE: 1:1200 (A3)

0 12 24

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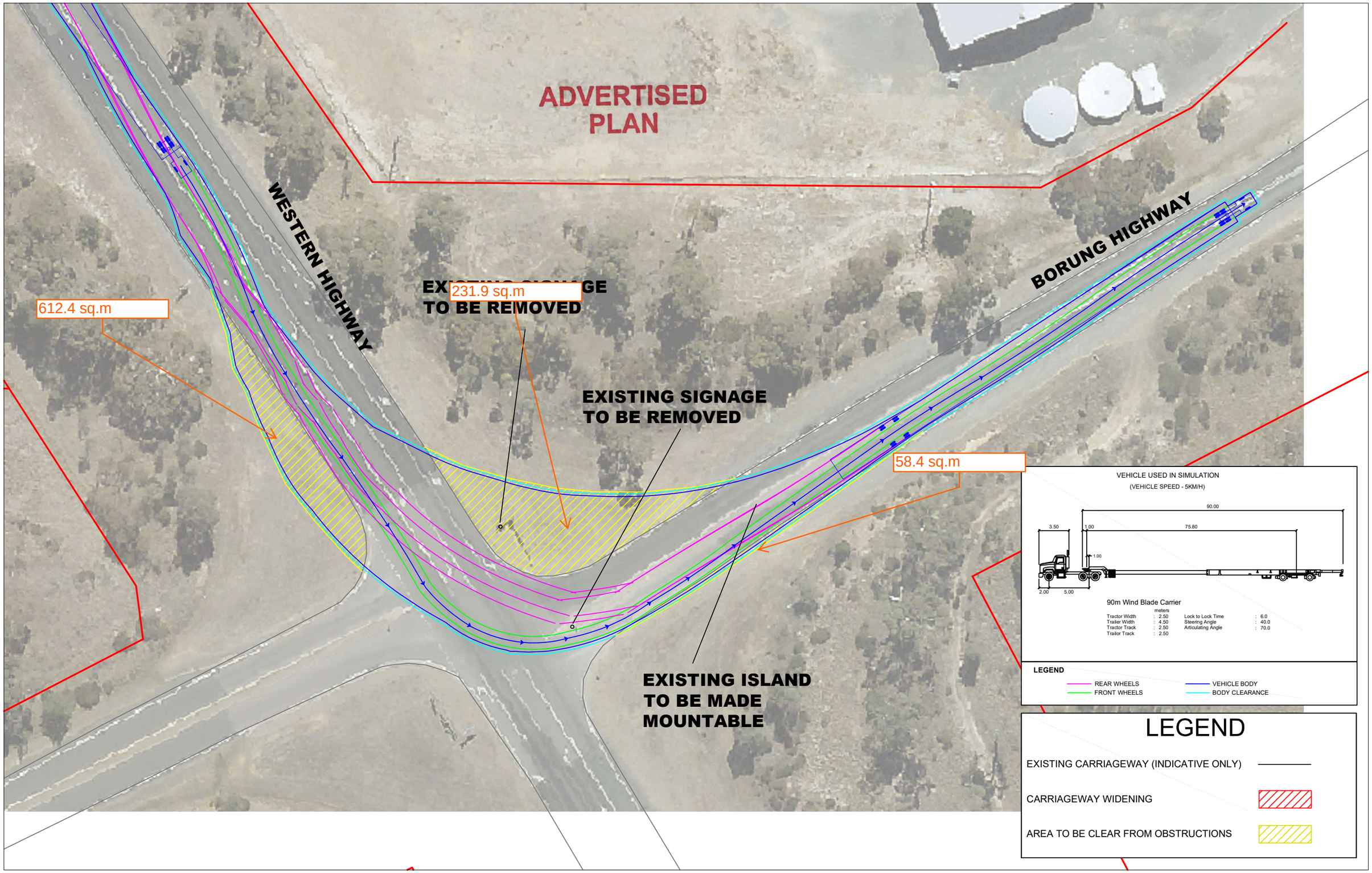
WESTERN HIGHWAY / BORUNG HIGHWAY INTERSECTION - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	09-08-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
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C	06-09-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK
PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM GOOGLE EARTH
PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04
SHEET NO.: 19

N

SCALE: 1:1000 (A3)
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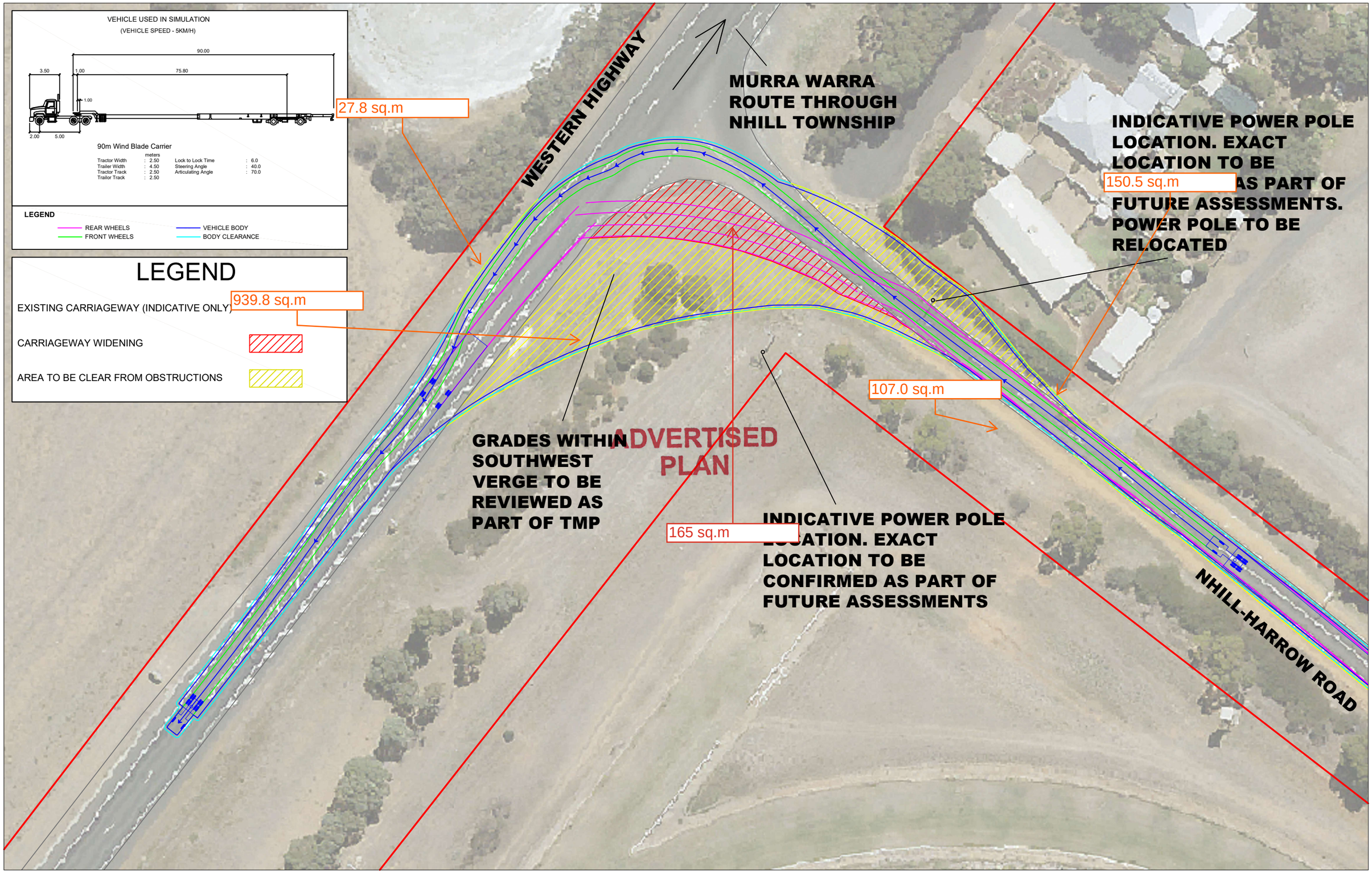
Potential Nhill Detour

NHILL-HARROW ROAD / WESTERN HIGHWAY INTERSECTION - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS (ALTERNATE NHILL TOWNSHIP DETOUR)



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	09-08-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	14-08-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
C	06-09-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK
PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM GOOGLE EARTH
PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04
SHEET NO.: 15

N

SCALE: 1:300 (A3)
0 10 20

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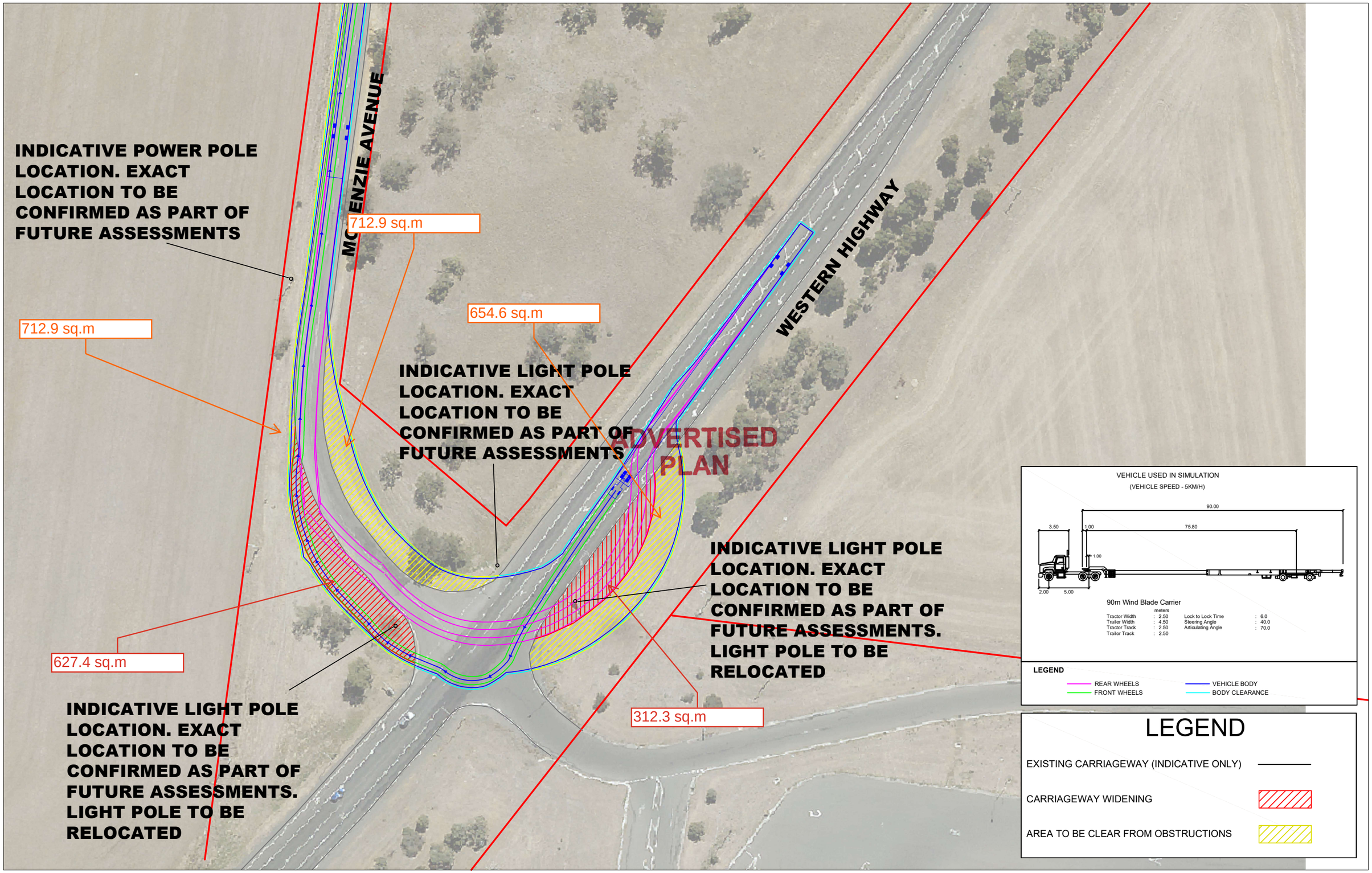
WESTERN HIGHWAY / MCKENZIE AVENUE INTERSECTION - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS (ALTERNATE NHILL TOWNSHIP DETOUR)



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	09-08-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	14-08-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
C	06-09-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK
PROPOSED ENERGY FARM

GENERAL NOTES:
AERIAL PHOTOGRAPH SOURCED FROM GOOGLE EARTH
PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04
SHEET NO.: 16

N

SCALE: 1:1000 (A3)
0 10 20

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MCKENZIE AVENUE / NELSON STREET INTERSECTION - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS (ALTERNATE NHILL TOWNSHIP DETOUR)

82.3 sq.m

152.4 sq.m

294.9 sq.m

INDICATIVE POWER POLE LOCATION. EXACT LOCATION OF POWER POLE AND STAY TO BE CONFIRMED AS PART OF FUTURE ASSESSMENTS

985.7 sq.m

NELSON STREET

EXISTING FENCING TO BE REMOVED AND CULVERT EXTENDED

EXISTING SIGNAGE

167.1 sq.m

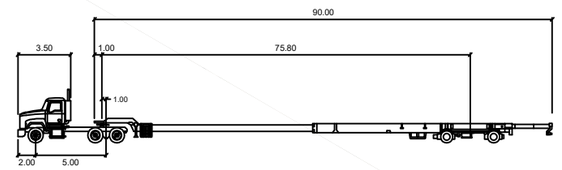
49.2 sq.m

INDICATIVE POWER POLE LOCATION. EXACT LOCATION TO BE CONFIRMED AS PART OF FUTURE ASSESSMENTS. POWER POLE TO BE RELOCATED

MCKENZIE AVENUE

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)



90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailor Track	: 2.50		

LEGEND

REAR WHEELS
FRONT WHEELS
VEHICLE BODY
BODY CLEARANCE

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	09-08-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	14-08-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
C	06-09-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM GOOGLE EARTH

PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04

SHEET NO.: 17

N

SCALE: 1:1000 (A3)

0 10 20

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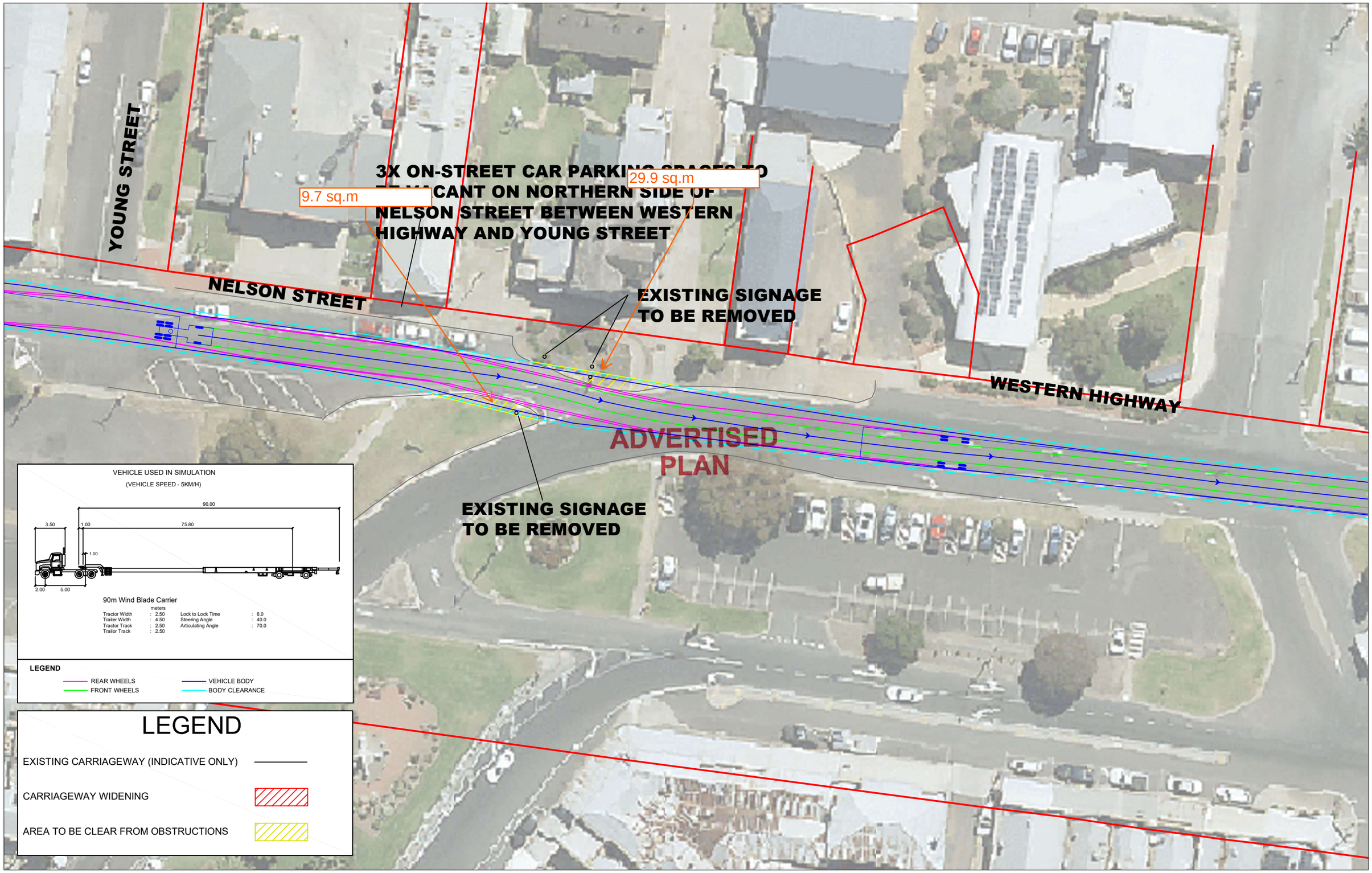
NELSON STREET / WESTERN HIGHWAY INTERSECTION - INDICATIVE CARRIAGEWAY WIDENING & CLEARANCE REQUIREMENTS (ALTERNATE NHILL TOWNSHIP DETOUR)



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	09-08-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	14-08-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
C	06-09-24	UPDATED ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
D	09-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

WARRACKNABEAL ENERGY PARK
PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL PHOTOGRAPH SOURCED FROM GOOGLE SATELLITE
PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G31803-04
SHEET NO.: 18

N

SCALE: 1:1000 (A3)
0 10 20

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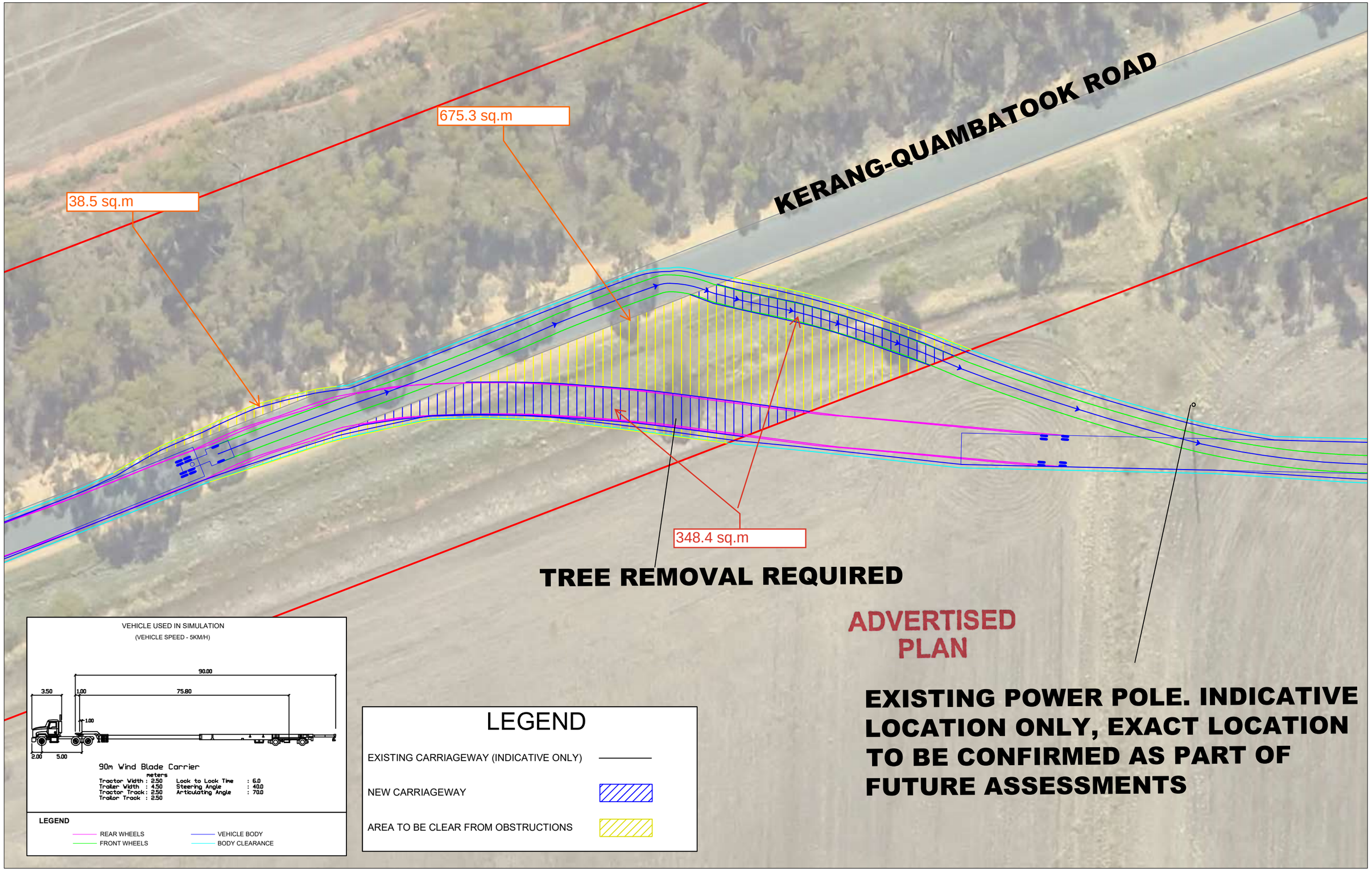
Warracknabeal to Project Area

KERANG-QUAMBATOOK ROAD SITE ACCESS CONNECTION - ROAD WIDENING AND VEGETATION REMOVAL EXTENTS



VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)

90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailor Track	: 2.50		

LEGEND

REAR WHEELS — VEHICLE BODY

FRONT WHEELS — BODY CLEARANCE

LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

NEW CARRIAGEWAY

AREA TO BE CLEAR FROM OBSTRUCTIONS

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	04-09-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	15-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

NORMANVILLE ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL IMAGERY SOURCED FROM LIDAR

PROPERTY BOUNDARIES (INDICATIVE ONLY)

FILE NAME: G32837-03

SHEET NO.: 01

N

SCALE: 1:500 (A3)

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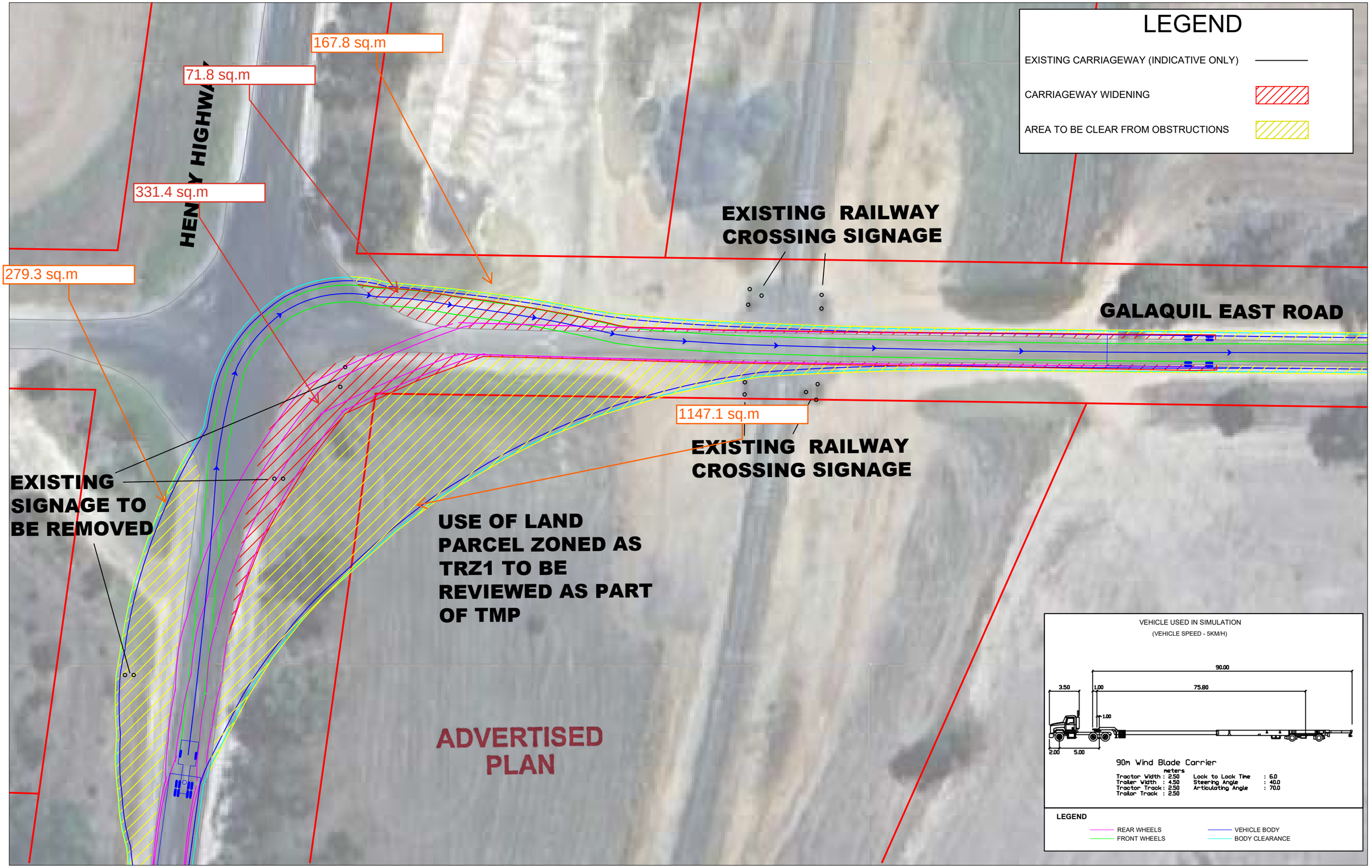
HENTY HIGHWAY - GALAQUIL EAST ROAD INTERSECTION - ROAD WIDENING AND VEGETATION REMOVAL EXTENTS



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	04-09-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	15-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

NORMANVILLE ENERGY PARK
PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL IMAGERY SOURCED FROM GOOGLE SATELLITE
PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G32837-03
SHEET NO.: 02

N

SCALE: 1:500 (A3)
0 5 10

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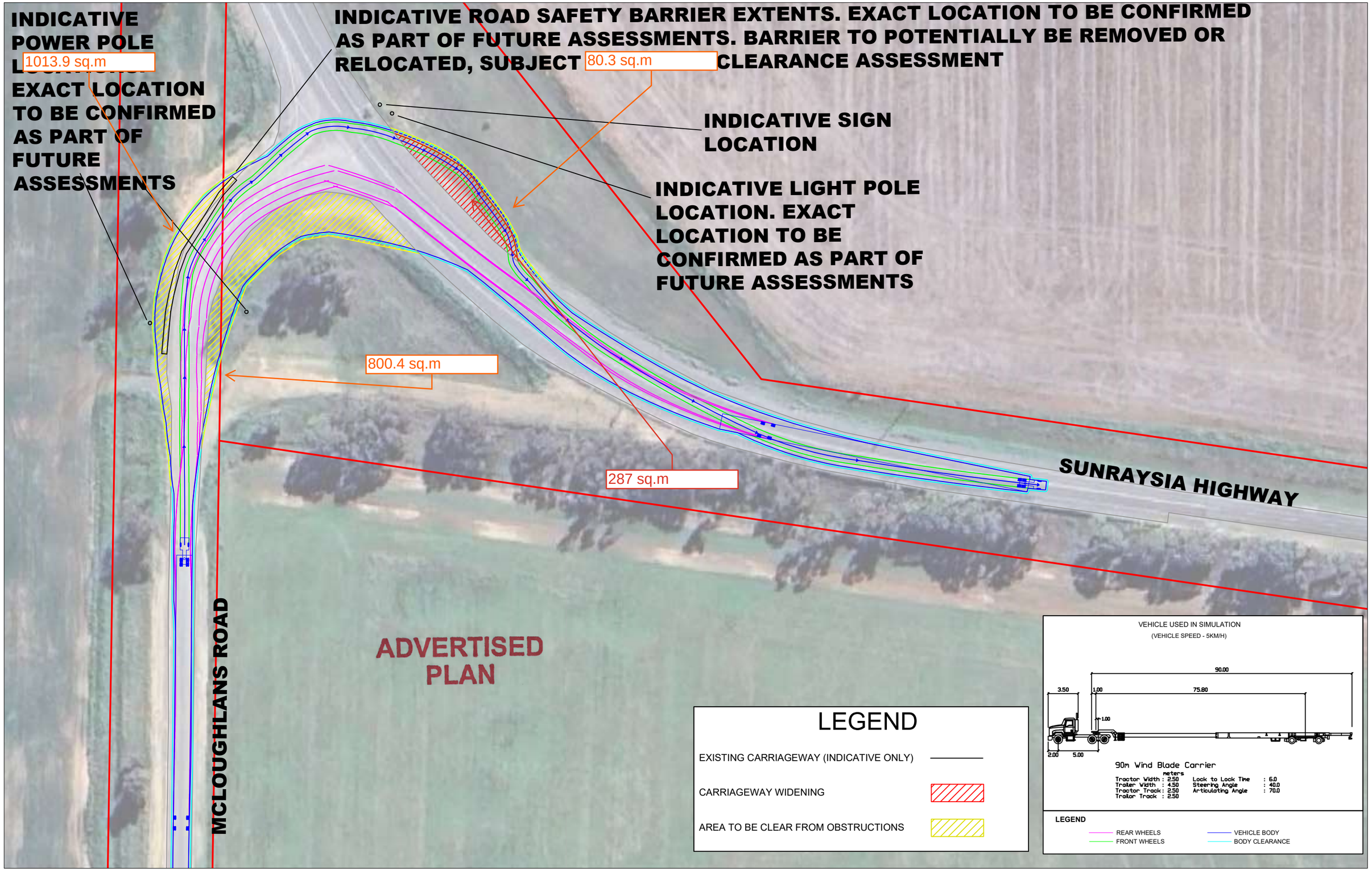
SUNRAYSIA HIGHWAY - MCLOUGHLANS ROAD INTERSECTION - ROAD WIDENING AND VEGETATION REMOVAL EXTENTS



LEGEND

EXISTING CARRIAGEWAY (INDICATIVE ONLY)

CARRIAGEWAY WIDENING

AREA TO BE CLEAR FROM OBSTRUCTIONS

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)

90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

LEGEND

REAR WHEELS

FRONT WHEELS

VEHICLE BODY

BODY CLEARANCE

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	04-09-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	15-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

NORMANVILLE ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL IMAGERY SOURCED FROM GOOGLE SATELLITE

PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G32837-03

SHEET NO.: 03

N

SCALE: 1:1000 (A3)

0 10 20

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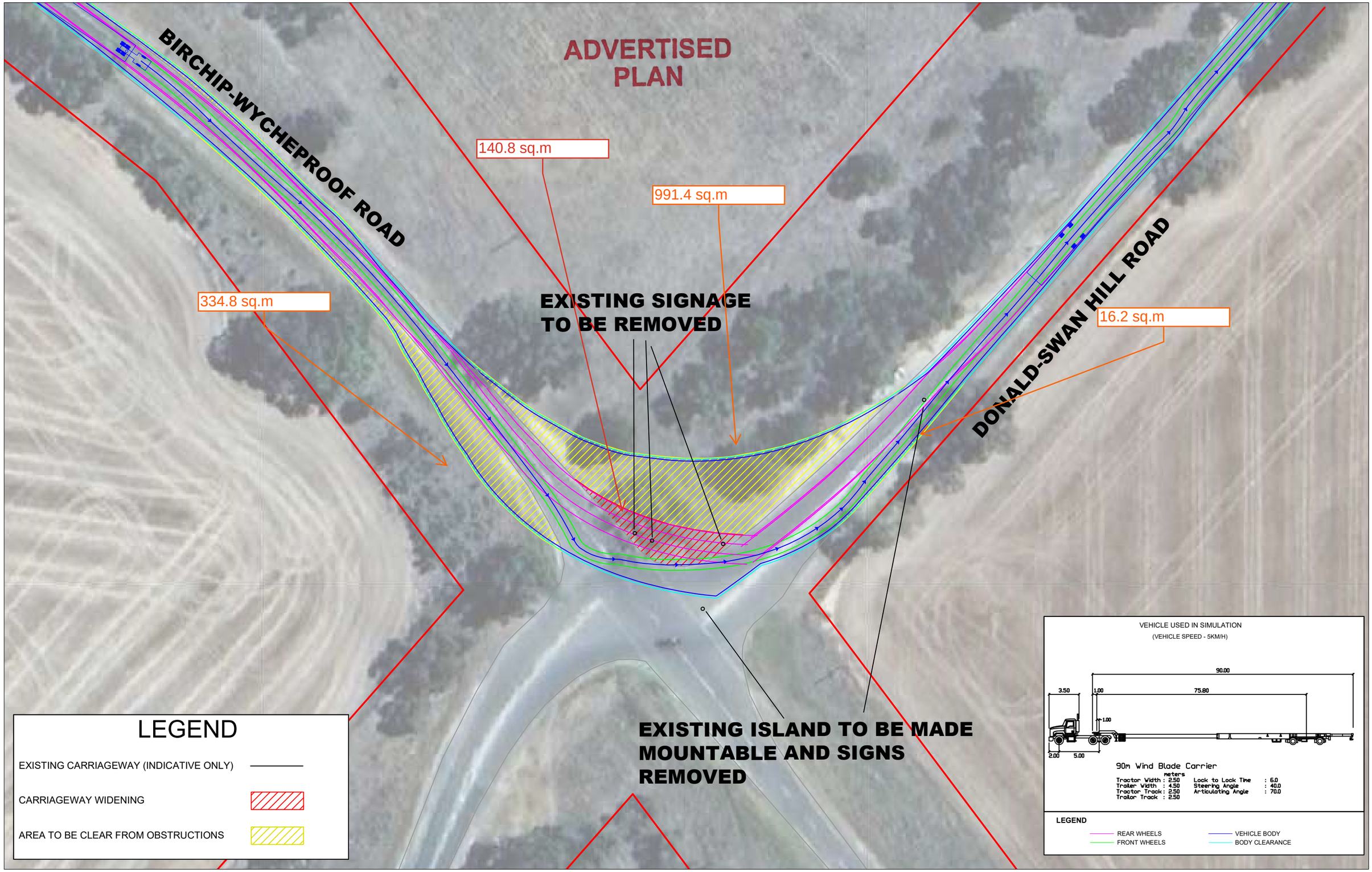
www.traffixgroup.com.au

BIRCHIP-WYCHEPROOF ROAD - DONALD-SWAN HILL ROAD INTERSECTION - ROAD WIDENING AND VEGETATION REMOVAL EXTENTS



LEGEND

- EXISTING CARRIAGEWAY (INDICATIVE ONLY)
- CARRIAGEWAY WIDENING
- AREA TO BE CLEAR FROM OBSTRUCTIONS

VEHICLE USED IN SIMULATION

(VEHICLE SPEED - 5KM/H)

90m Wind Blade Carrier

meters

Tractor Width	: 2.50	Lock to Lock Time	: 6.0
Trailer Width	: 4.50	Steering Angle	: 40.0
Tractor Track	: 2.50	Articulating Angle	: 70.0
Trailer Track	: 2.50		

LEGEND

- REAR WHEELS
- FRONT WHEELS
- VEHICLE BODY
- BODY CLEARANCE

REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	04-09-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	15-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

NORMANVILLE ENERGY PARK

PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL IMAGERY SOURCED FROM GOOGLE SATELLITE

PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G32837-03

SHEET NO.: 04

N

SCALE: 1:500 (A3)

0 5 10

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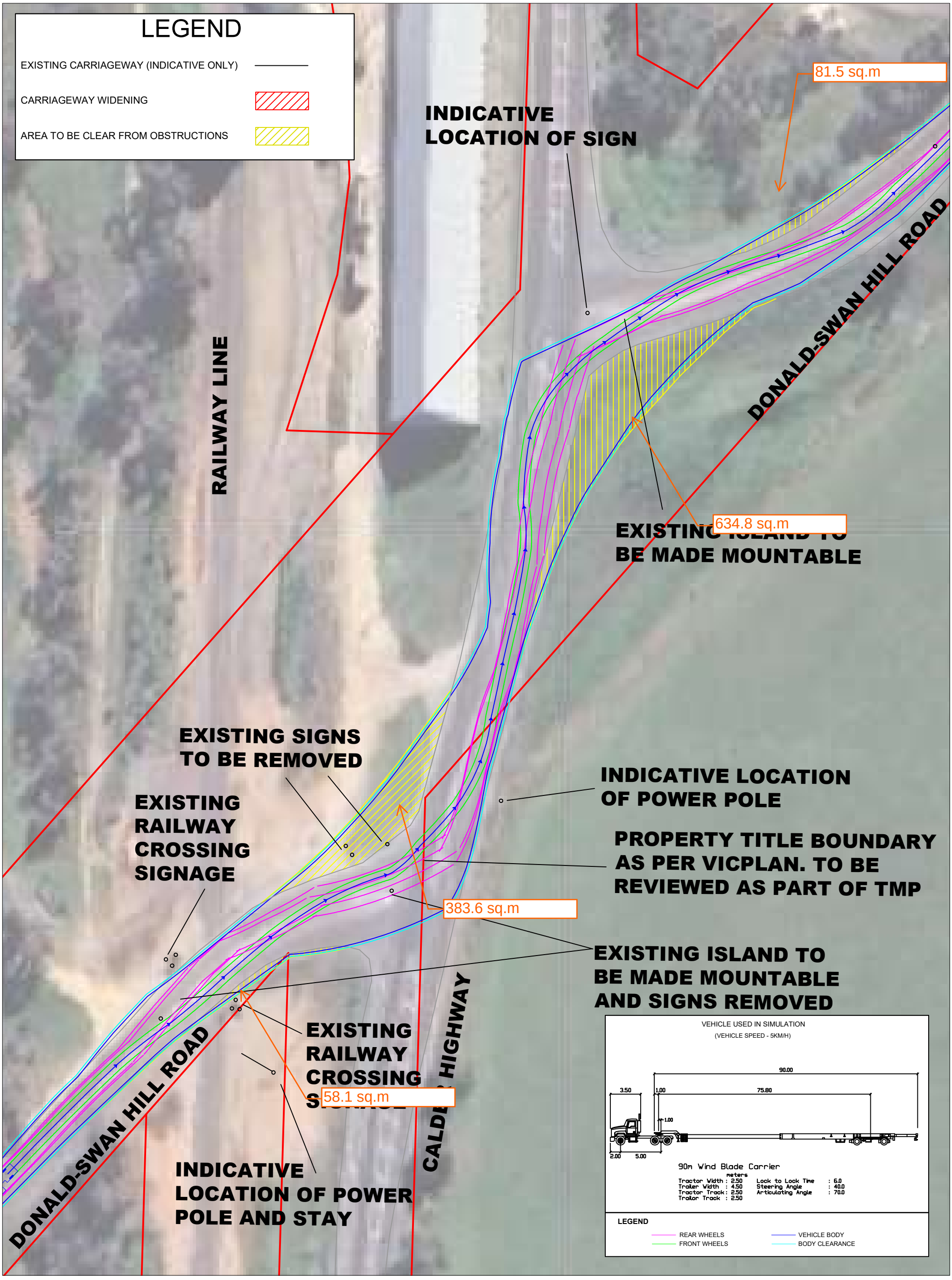
DONALD-SWAN HILL ROAD - CALDER HIGHWAY INTERSECTION - ROAD WIDENING AND VEGETATION REMOVAL EXTENTS



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	04-09-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	15-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

ADVERTISED PLAN

NORMANVILLE ENERGY PARK
PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL IMAGERY SOURCED FROM GOOGLE SATELLITE.
PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G32837-03
SHEET NO.: 05

0 5 10
SCALE:
1:500 (A3)

N

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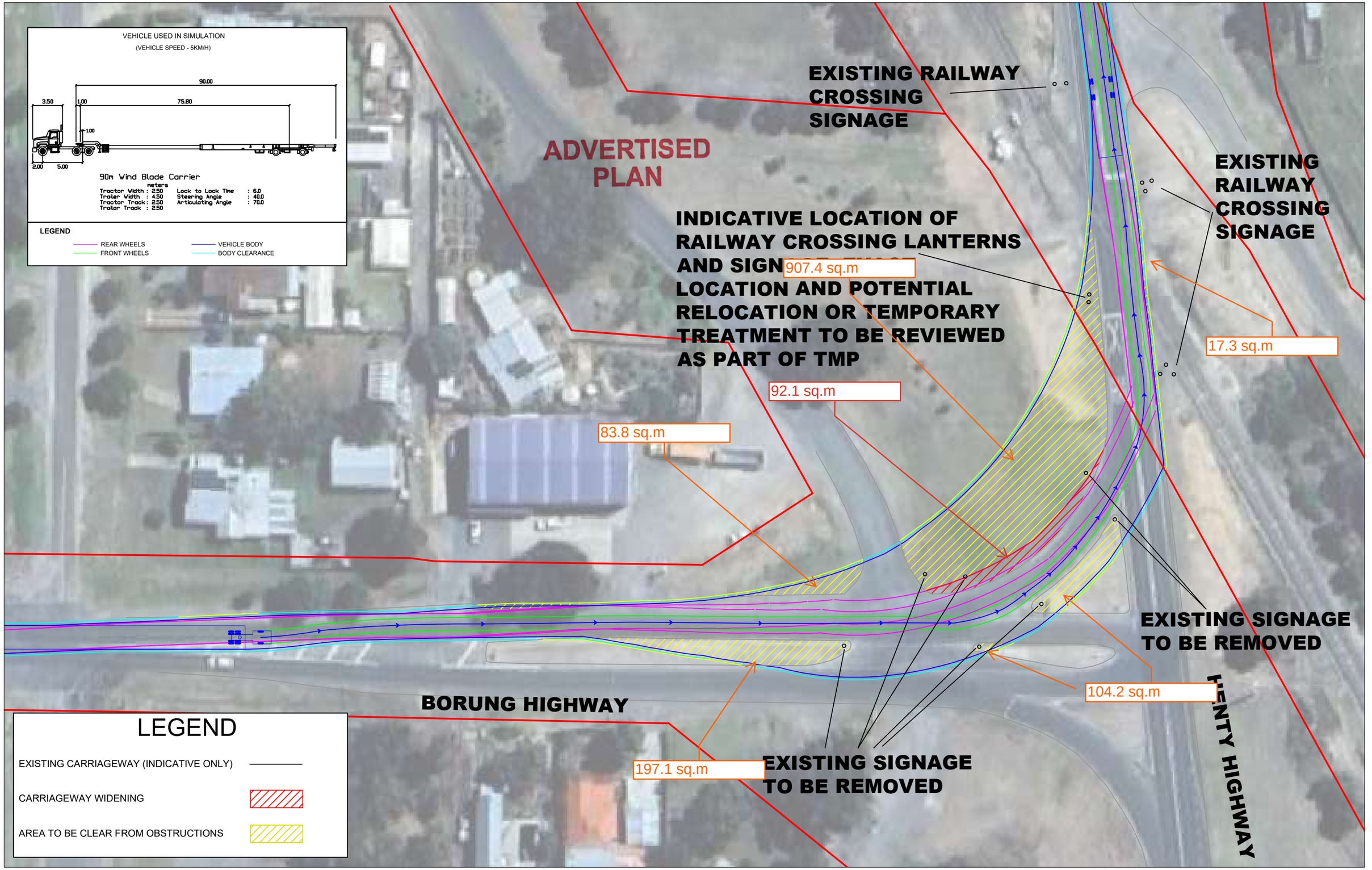
BORUNG HIGHWAY - HENTY HIGHWAY INTERSECTION - ROAD WIDENING AND VEGETATION REMOVAL EXTENTS



REV	DATE	NOTES	DESIGNED BY	CHECKED BY
A	04-09-24	ORIGINAL ISSUE	K. BULLOCK	D. TROTTER (RPE6797)
B	15-10-24	UPDATED AERIALS	K. BULLOCK	D. TROTTER (RPE6797)

NORMANVILLE ENERGY PARK
PROPOSED ENERGY FARM

GENERAL NOTES:

AERIAL IMAGERY SOURCED FROM GOOGLE EARTH
PROPERTY BOUNDARIES (INDICATIVE ONLY) SOURCED FROM VICMAP PROPERTY DATA

FILE NAME: G32837-03
SHEET NO.: 06

N

SCALE: 1:500 (A3)
0 5 10

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